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THE DETERMINANTS OF SOCIAL CAPITAL ON FACEBOOK

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THE DETERMINANTS OF SOCIAL CAPITAL

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Abstract

This paper investigates the effect of socioeconomic status, trust and privacy concerns, and socio psychological factors on building three structural measures of social capital, which are bridging, bonding and network size (degree). Using online survey data, I find the evidence that trust and privacy concerns, being a female, and the number of hours spent in Facebook are significant determinants of bridging social capital and degree. I show that females and respondents that have trust and privacy concerns are less likely to build bridging social capital. In addition to this, the number of hours spent on Facebook is positively related to the probability of engaging in bridging social capital. The results also suggest that females are less likely to increase their network size. On the other hand, respondents that spend more hours on Facebook and respondents that come from high-income class are more likely to increase their network size.

Keywords: Social capital, Facebook, trust and privacy concern, socio-economic status, socio-psychological factors

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1. Introduction

There have been several studies related to measuring social capital in social network sites. For example, Brooks et al. (2011) discovers the relationship between socioeconomic status and three types of social capital which are network size, bonding social capital and bridging social capital. According to their results, higher socioeconomic status relates to larger and denser networks but not networks with more clusters so they concluded that socioeconomic status is not that much important to build new networks but it is certainly helpful to maintain existed networks. In another study, Burke, Marlow and Lento (2010) conclude that intensive Facebook usage relates to bonding social capital but has a modest relationship with bridging social capital. In addition, they states bonding social capital decrease loneliness of active Facebook users.

Similarly, Steinfield et al. (2008) investigate the relationship between Facebook use, measures of psychological well-being and bridging social capital. They found that self-esteem moderates between Facebook use and bridging social capital. As a result of their study, Steinfield et al. (2008) conclude that people with lower self-esteem gain more in their Facebook usage in terms of bridging social capital.

Furthermore, Valenzuela et al. (2009) discover that intensity of Facebook use is positively associated with life satisfaction and social trust. Life satisfaction and social trust have causal relationship; however, the direction of relation has not been clear yet. It is argued that people who belong to trusted network have higher life satisfaction, also it is suggested that people with higher life satisfaction have tendency to build trusted networks. In addition, Valkenburg, Peter and Schoten (2006) conclude that use of friend network sites may be an effective vehicle for enhancing self-esteem for young adolescents in their study. Finally, the well-known social network scholars, Helliwell and Putnam (2004), drive a conclusion that social capital is essential for the subjective well-being and psychical health.

Although there have been several studies about measuring social capital on social network sites, there is no research done with Turkish data. Existing studies use the experiences of American young college students on social network sites. In this study, an online web survey

is conducted to the students of Middle East Technical University in Turkey. The relationship between socioeconomic status, trust and privacy concerns and, socio psychological factors and three structural measures of social capital, which are bridging, bonding and degree are examined. In addition, an open source social network analysis tool, NodeXL, is used in order to test the survey sample's randomness and also one volunteer respondent's social network graph's credibility.

2. Literature review

2.1 Social capital

In the review of social capital, firstly, the brief definition will be given and secondly how the term functions in social network sites will be discussed.

Koput (2010) defines social capital in terms of a productive resource, an investment, Inherent in relationships, and appropriable and explains as the following:

A productive resource that can be used to create value;

An investment, with an element of risk the value is not assured and will accrue in the future rather than being immediate;

Inherent in relationships, not actors, meaning that it does not belong to one person, but requires a social structure and joint participation;

Appropriable, meaning that a relationship of one type (say work) may be used for other purposes(say friendship)- although it is not completely fungible, meaning that it cannot be cashed in on demand for a predetermines value that's not specific to certain activities, time, or context.

In addition, Coleman (1988) refers social capital to relation among persons, which is a productive activity and depends on trustworthiness and trust. From these definitions, it can be drawn that social capital simply targets to benefit from relationships (alternatively connections or ties) of person's networks. In social network sites, social capital is generally broken down into three parts in order to be measured: bridging social capital, bonding social capital and network size (degree). (see for example, Steinfield et al. (2008); Brooks et al. (2011); Burke, Marlow and Lento (2010)) Bridging social capital refers to benefit from weak

ties in diverse network connections. Bonding social capital refers to strong ties in homogeneous network connections, which lead to emotional support. Network size (degree) refers to the total number of connections (ties) in one's social network.

There are three different domains of social capital, which are intrapersonal, interpersonal and behavioral. The interpersonal domain refers to trust among individuals, also called social or generalized trust in others. Helliwell and Putnam (2004) discussed social capital in the scope of interpersonal domain and claim that social trust and reciprocity are the main factors that construct social capital. Furthermore they suggest that people interact the ones whom they think trustable have higher subjective well-being scales. When the trustworthiness is higher, there will be high probability for the existence of social capital. (see for example Helliwell and Putnam, 2004)

The second domain of social capital is behavioral. The behavioral domain consists of involvement of individuals' active participation in civic, political activities and interest in public affairs. This study will not cover this domain.

The third domain is intrapersonal domain which is related to individuals' life satisfaction. Valenzuela et. al. (2009) claims that byproducts of social capital help to improve individual's well-being and quality of life and also other social science scholars explore the functions of social and personal networks for individual or group well-being" (Morrow, 1999: 761). For example, Burke, Marlow and Lento (2010) investigated the role of Facebook communication (wall posts, comments, "likes", status updates, photos, friends' conversations) and social capital and they found out that directed communication on Facebook is highly related with bonding of social capital which reduces loneliness. However, directed communication has modest relationship with bridging social capital, which strongly relates with friend network size. (Burke, Marlow and Lento (2010)) In order to be bridging capital on Facebook, one should benefit from the weak ties in his/her network. Although, people have direct communication with their close friends on Facebook, there are also other people whom they have weak ties but they only browse these people's interaction. According to Burke, Marlow and Lento (2010), this stalking activity does not turn in as an advantage but loneliness, also they highlight that loneliness may cause browsing people's interaction instead of communication with them.

According to Putnam (2000), internet indirectly helps people to develop social capital and declares his argument with the following quotation.

Computer-mediated communication will complement, not replace, face-to-face communication. “Communication is a fundamental prerequisite for social and emotional connections”(Putnam, 2000: 171).

Therefore, Internet provides social platform for existence of virtual communities based on support groups, discussion groups, and self-help groups. Blanchard (2004: 71) claims that “with the growing use and acceptance of Internet, people’s global, virtual villages are likely to overlap with their local Face-to-Face social network ties”. The ties in these groups lead to social connectedness therefore they provide access to people who even lack access to social capital. Apart from the ties within these virtual communities, the benefit of Internet is questioned whether it helps to develop social capital or not. For this purpose, in the study named “Do Internet Users Have More Social Ties? A Call for Differentiated Analyses of Internet Use”, Zhao (2006) highlights that Internet provides online activities (such as e-mail and chat) which are positively correlated with social ties, but other solitary activities such as web surfing are negatively associated with social ties for developing social capital.

On the other hand, Morrow (1999) is partially disagree with the accounts that refer social capital to sociability, social networks and social support, trust, reciprocity, and community and civic engagement because she suggests there should be more complete theory of social capital, which includes health related research in order to conceptualize and generalize social capital.

2.2 Socio-economic status

Socioeconomic status is described as advantages that come from material, social and cultural resources². As social capital is the ability to benefit from relationships, those who have access to material, social and cultural resources are expected to have higher social capital. Before the rise of social network sites, social network scholars made research on relationship between socioeconomic status and social capital. For example, Erickson (2001) found that people who have higher socioeconomic status know more individuals also they know more individuals from greater diversity of backgrounds.

² <http://www.ncrel.org/sdrs/areas/issues/students/earlycld/ea7lk5.htm>

Brooks et al. (2011) state that socioeconomic status has three important dimensions that are educational achievement, occupational prestige and economic resources. Thus, it is expected socioeconomic status relates to advantage and disadvantage to person's social capital.

According to Brooks et al. (2011), higher socioeconomic status relates to larger and denser networks, but not the networks with more clusters. For this reason, it is expected to find out that the respondents with higher socioeconomic status have larger friend lists than those with lower socioeconomic status.

Valenzuela et al. (2009) concludes that the relationship between Facebook use and social capital was not large and it does not vary by college students' socioeconomic background according to the findings from their study's dependent variables explained by regression models.

Valenzuela et. al. (2009) stresses that there is no causal relationship between use of Facebook and increased social capital from the results of their study however they find out there is a strong association of Facebook use with the intrapersonal and behavioral components of social capital.

Zhao (2006) states the way which institutionally based social ties and voluntarily based social ties emerge differs. The size of one's institutional network depends on the number of family members and coworkers that also depend on characterizes of institutions. On the other hand, one's voluntary social network depends on one's own socialization efforts.

2.3 Socio-psychological factors

There are several reasons behind the willingness of people to join social networking sites and variety of the activities that they do in such sites. Subrahmanyam et al.(2008) conducted an online survey to find out the reasons why young students join in social network sites and the activities what they perform in such sites and it is concluded that "To stay in touch with friends I don't see often" is the most common reason for using social network sites. Moreover, they conclude that "Read/Respond to notes/messages", "Read comments/posts on profile", "Browse friends pages/walls" are the common activities of young people in social networking sites.

Furthermore, Gangadharbatla (2008) investigates the factors that influence college students to join social networking sites. Gangadharbatla (2008) expects to find out self-efficacy, need to belong, need for cognition and collective self-esteem as psychological factors in the attitude of college students towards social networking sites. However, Gangadharbatla (2008) discovers that need for cognition is not relevant factor in the willingness to join social networking sites: *“Internet self-efficacy, need to belong, and collective self-esteem all positively affect attitudes and willingness to join SNS, which provide the first two conditions of a mediation effect”* (Gangadharbatla, 2008).

Similarly Ellison et. al. (2007) discovers that there is strong relationship between social capital outcomes and one’s satisfaction with life and self-esteem. It is proposed that self-esteem is the mediator between Facebook usage intensity and bridging social capital. (Ellison et. al., 2007). Besides bridging capital, Burke, Marlow and Lento (2010) states that bonding social capital which consist of wall posts, comments on profile, and “likes” decrease loneliness. Furthermore, Valkenburg, Peter and Schouten (2006) mention that positive feedback on social network sites help to develop self-esteem for adolescents.

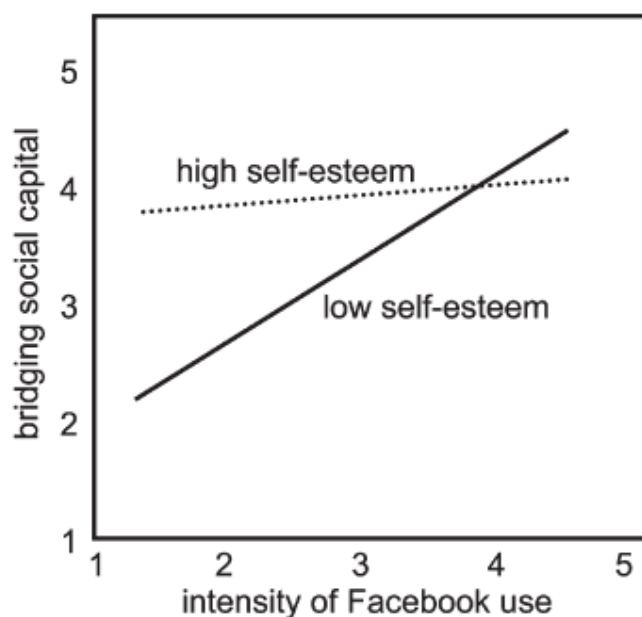


Figure 1: The interaction between self-esteem and Facebook use in predicting bridging social capital using self-esteem and Facebook use

Source: Ellison et al (2008)

As a result of their study, Ellison et. al (2007) discovers that people who have lower self-esteem gain more than those who have higher self-esteem in terms of bridging social capital. (see Figure 8). Therefore, it can be proposed that Facebook provides social and technical support for social interaction and people who have lower self-esteem benefits from this environment more than those who have high self-esteem.

Therefore, Ellison et al. (2008) determines that psychological well-being measures and intensity of Facebook use are the predictors of bridging social capital. Moreover, they claim that greater psychological well-being indicators lead to greater perceived bridging social capital.

2.4 Trust and privacy concern

Dwyer, Hiltz, and Passerini (2007) determine that internet privacy concern, trust in social network sites, trust in other members of social networking site as independent variables in information sharing and development of new relationships. Figure 1 below shows their privacy trust model. According to this model, information sharing and development of new relationships depend on internet privacy concern and trust in social networking site and other members of social networking site. However, the results of study show that although people seem to express very strong concerns about privacy of their personal information, they behave less vigilantly to protect it. There seems to be privacy concern in sharing personal information, the only information people avoid to share is their screen name. (See, for example, Dwyer, Hiltz, and Passerini (2009))

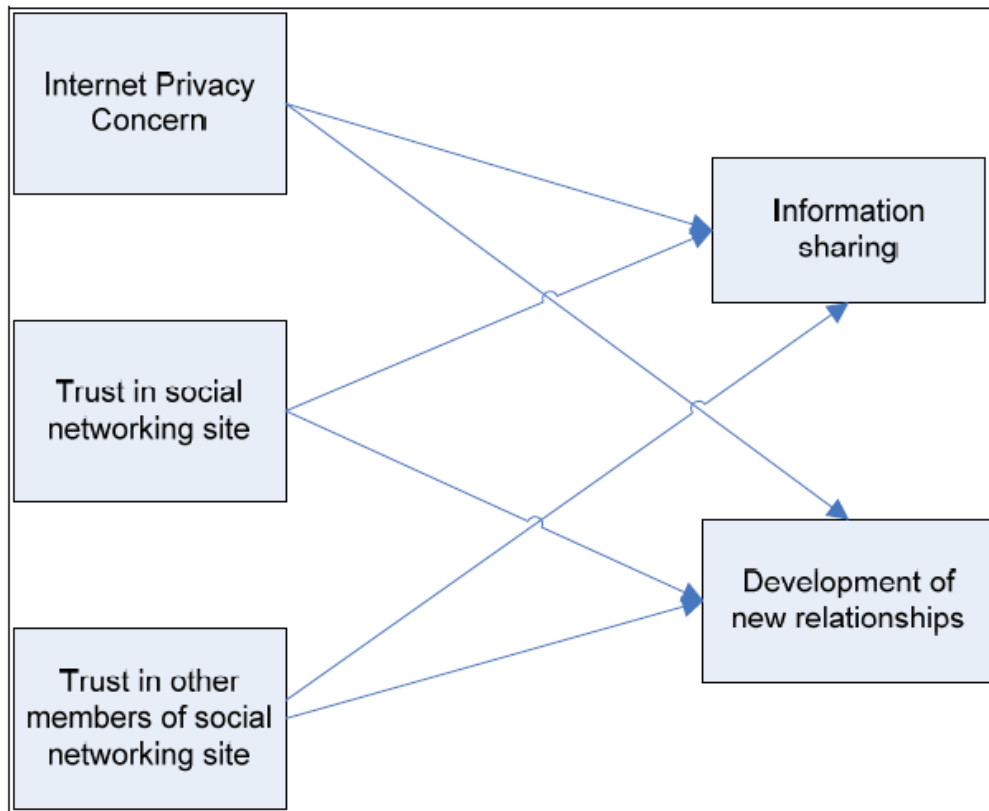


Figure 2: Privacy Trust Model on the Social Network Sites

(Source: Dwyer, Hiltz &Passerini, 2007)

Furthermore, their study compares Facebook and Myspace in terms of trust and privacy issues and highlights that people trust Facebook more than Myspace so they share more personnel information in their Facebook profiles than they share in Myspace profiles. Although people express less trust in Myspace site and to its members, they use Myspace to develop new relationships. Therefore, Dwyer, Hiltz, and Passerini (2007) conclude that trust is not as necessary as it is offline worlds in online interaction.

In general, young people believe that it is their responsibility to protect their online data rather than companies and governments. (See, for example, Wainer&Romina (2009)) However, Siegrist and Cvetkovich (2000) suggest that social trust is related to judgments of risks and benefits of hazards that individuals little know. Laypeople cannot develop accurate and reliable information about risks and benefits related to modern technologies, thus their decisions and judgments are guided by social trust. On the other hand, people do not need social trust in experts or authorities when they have knowledge in making decisions.

Valenzuela et. al. (2009) highlight that use of Internet has negative effects such as individual's alienation from society and public life and this is the same case in social network sites, it is declared that "Unsafe disclosure of information, cyberbullies, addiction, risky behavior, and contact with dangerous communities are popular concerns raised in the mainstream media about the use of SNSs" (Valenzuela et. al., 2009:875)

Online social network sites help to know better others and thus Valenzuela et. al. (2009) suggests that the more we know about others, this reduce uncertainty and prepare environment for trust and reciprocity.

3. Hypothesis and empirical framework

Having written existing literature on social capital related with socio-economic status, socio-psychological factors and trust and privacy concern in social network sites, this study uses original survey data to test the following hypotheses.

3.1 Hypothesis

Hypothesis 1: Higher Socio-Economic Status will be positively related to social capital

Hypothesis 2: Trust and privacy concerns have negative impact on social capital

Hypothesis 3: Socio-psychological factors are significantly related to social capital

3.2 Research hypothesis modeled and empirical framework

In this study, I use ordinary least square model in order to estimate the determinants of social capital. The basic regression model I use for the empirical analysis is as follows:

$$y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \varepsilon_i$$

Where y_i represents a particular social capital outcome such as social bridging, social bonding, and social degree outcome of respondent i , X_{i1} is a set of individual observable characteristics including, educational attainment, marital status, gender, and household size, a binary control for the employment status, and also an indicator for socio economic status. In empirical models, rather than using a continuous measure of income, I use dummy variables controlling for socio economic ranges and different education ranges. In addition to that, X_{i2} is a dummy variable which controls for socio-psychological state of the respondent and equals to one if the respondent is in a positive psychological mood. In addition to these variables, X_{i3} is a set of other variables including the number of hours that the respondent spend on Facebook and a dummy variable equals to one if the respondent is concerned about trust and privacy issues in social networking sites. Finally ε_i is the error term.

3.3 Method

To analyze the determinants of social capital on Facebook, survey data which contains socio-economic, socio-psychological and trust and privacy concern scales are examined.

3.3.1 Sample

A web-based online survey was conducted to the students whose age is between 18 and 30 in Middle East Technical University in order to fulfill the goals of this project in 2010-2011 Summer School term.

3.3.2 Procedures

Online survey is hosted by questionpro.com and the link of the survey is www.asliertantermproject.questionpro.com. 283 people started to the survey but only 108 of them completed it. (see Figure 3)

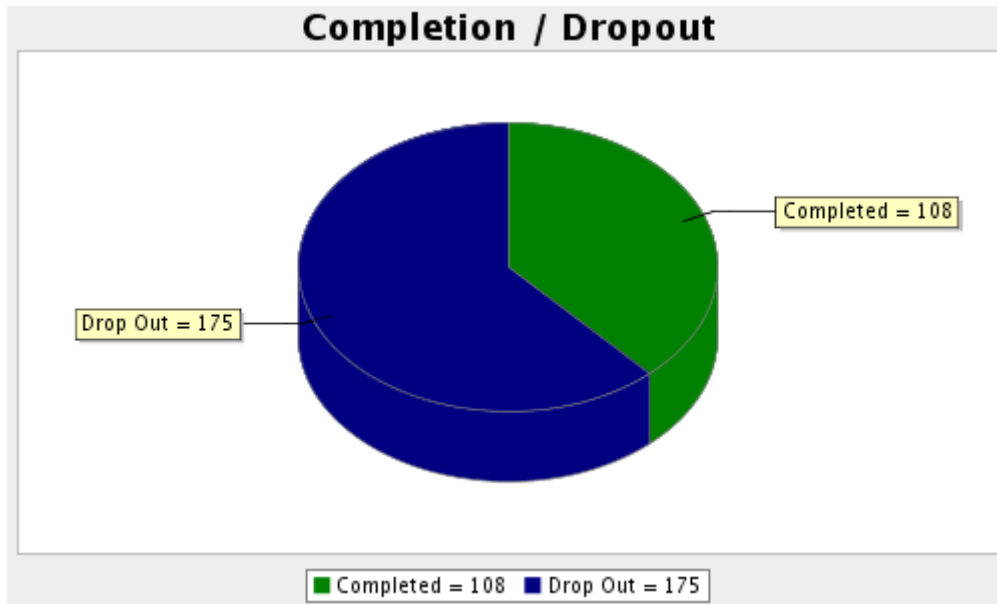


Figure 3: Completion/ Dropout of the number of Respondents

There can a number of reasons that could explain why 175 people gave up completing survey. First, although the name section is optional, students may not trust online surveys because of security issues, the IP numbers were logged by the hosting website. Second, although the survey is easy to fill and has 32 questions, students may not have willingness in participating the survey in order not to allocate time.

3.2.3 Measures

Age

The median and average of the participants' age is 26. The students whose age is between 18 and 30 were asked to join the survey. Generally, the graduate students participated in the survey because mostly there are working in Ankara during summer. The undergraduate students are mostly out of city, most probably they did not log in to their Facebook account during their summer holiday.

Gender

Female students are more willingly in participating the survey. The percentage of the gender distribution is shown in the figure 4 below.

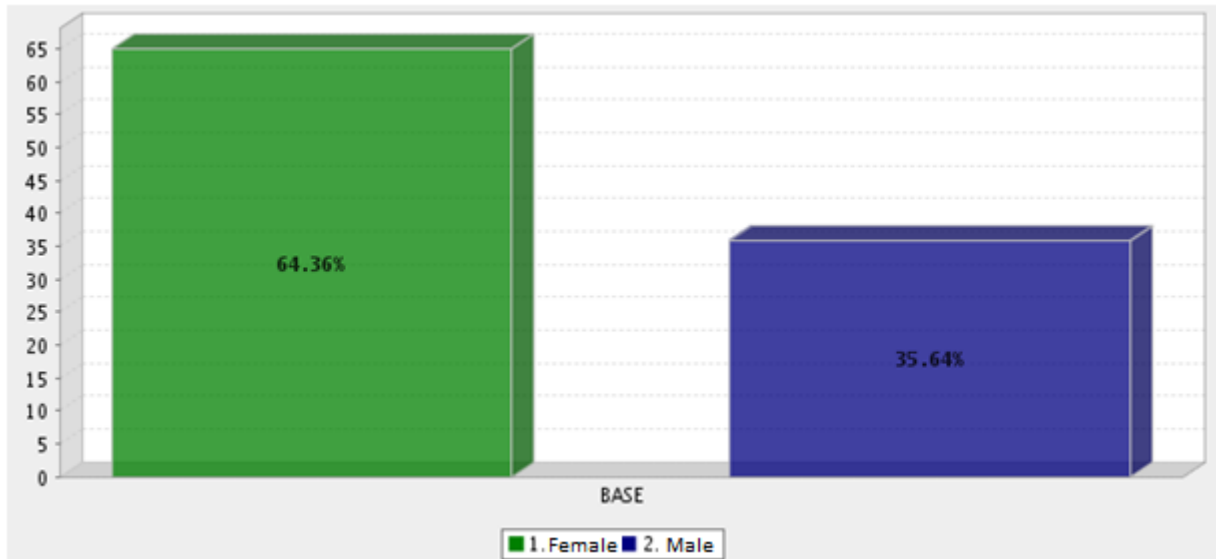


Figure 4: Gender Distribution of Participants

Marital Status

The survey participants' marital status is mostly single with a percentage of 87.38. The percentage of relationship status of participants is shown in the figure below.

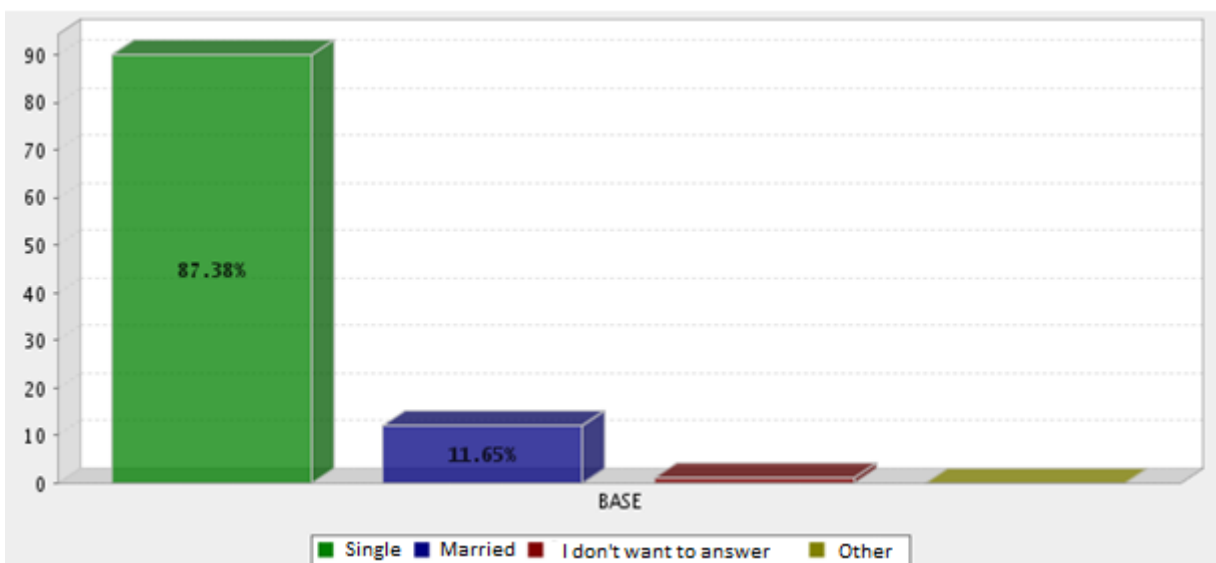


Figure 5: Distribution of Relationship Status of Respondents

Facebook Use

In the survey, how many times a day they log into Facebook is asked. There are answer options which are "I don't log in Facebook everyday", "I log in between 1-10 times a day", "I

log in Facebook so much that I cannot count” and “I log in Facebook and I don’t log out for a long time in each day”. The percentages of the distribution of these answers are shown below. Participants mostly choose the answer which is “I log in between 1-10 times a day”.

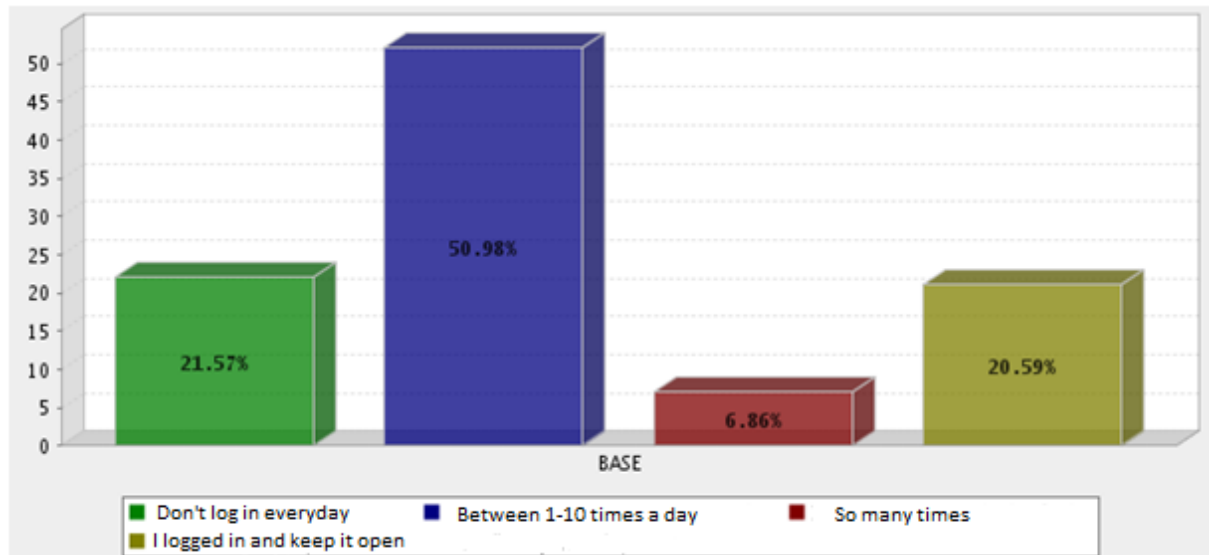


Figure 6 : Distribution of the number of times that respondents log in Facebook a day

Another question about Facebook usage is that how many hours participants spend on Facebook in each day. Participants almost equally chose the options which are “I spend less than 30 minutes”, “I spend between 30-60 minutes” and “I spend between 1-2 hour”. Percentage of 2.94 chose spending between 2 and 5 hours. The percentage distribution of how many hours are spent in each day on Facebook is shown below.

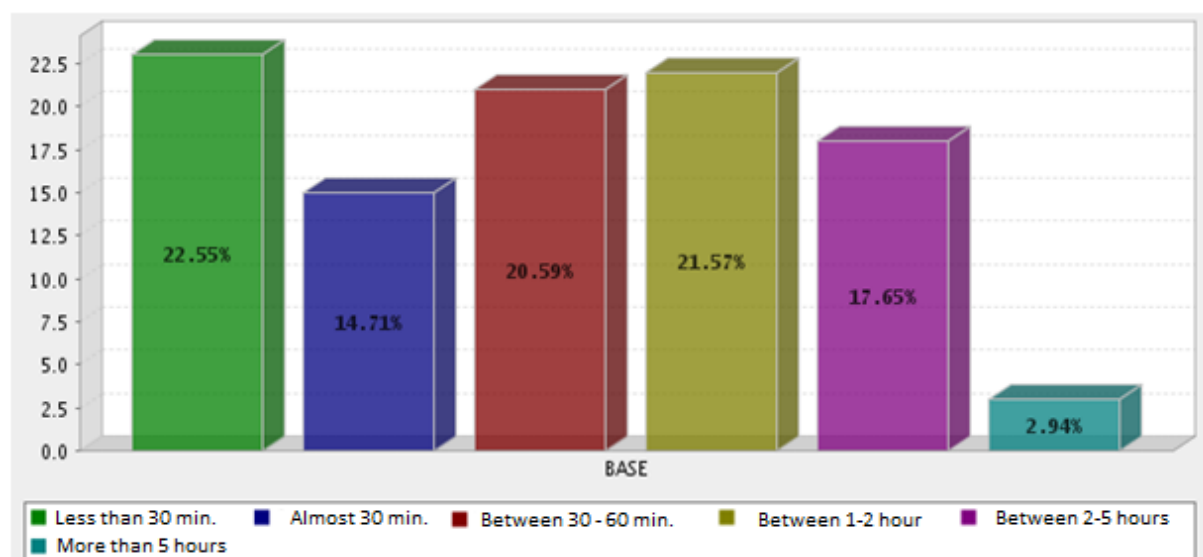


Figure 7: The number of times that respondents spend on Facebook a day

Socioeconomic Status

In a similar study, Brooks et al. (2011) measure socioeconomic statuses due to the respondents' self-reported social status because otherwise respondents react negatively and leave the questions empty. Figure 9 demonstrates the respondents' self-reported socioeconomic class status. The majority chose middle-income social class with a percentage of 45.54.

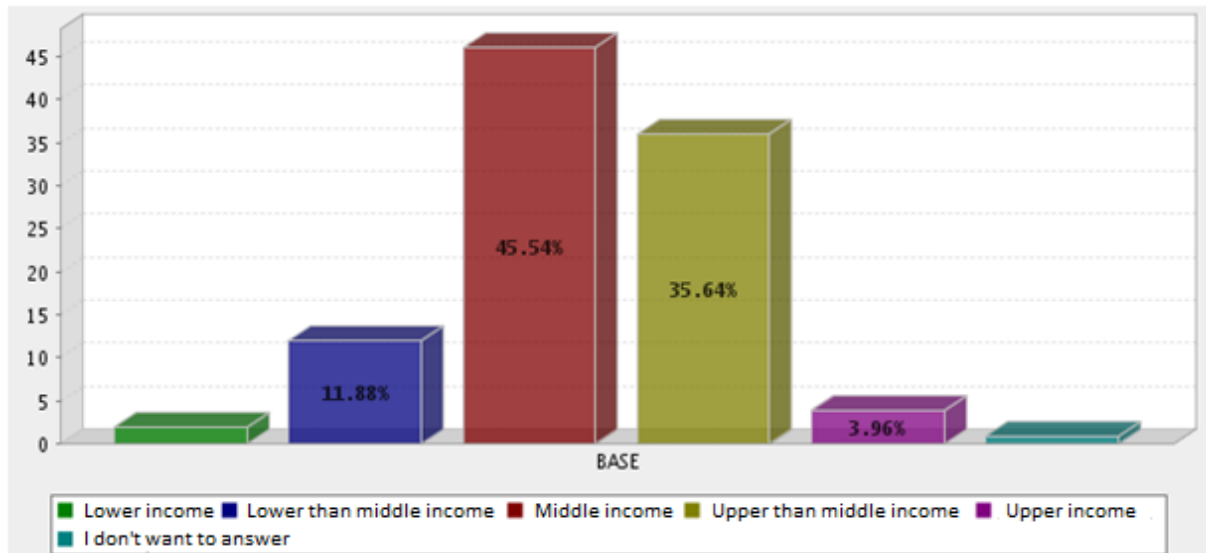


Figure 8: The Distribution of Respondents' Socio-Economic Class Status

Social Capital

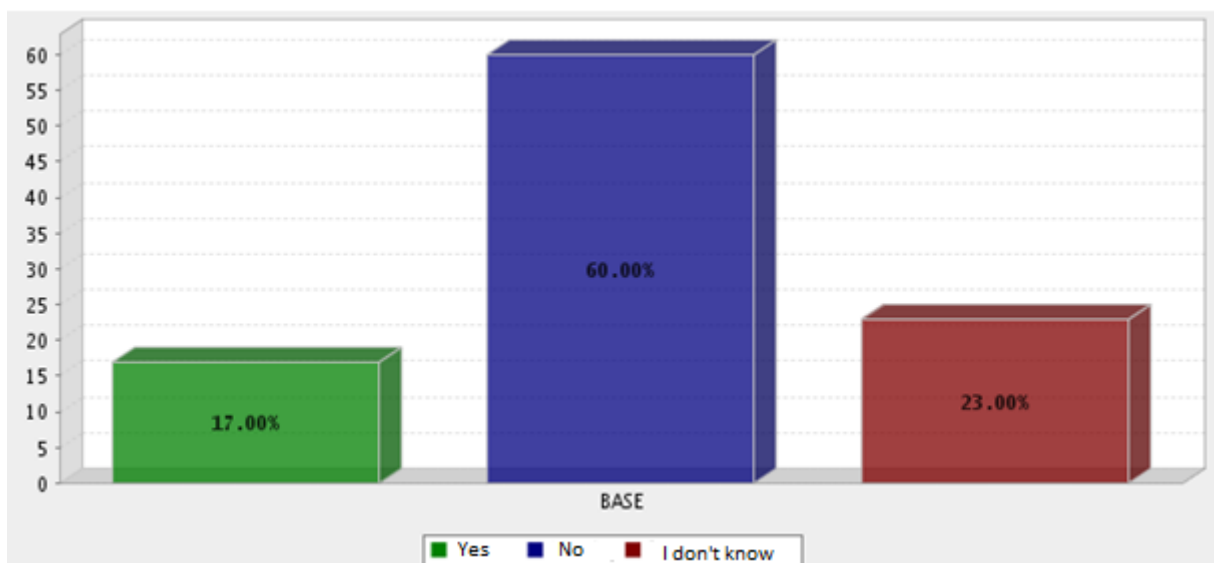


Figure 9: Distribution of responses reported on willingness to use Facebook to meet strangers

Respondents were asked whether they are willing to meet strangers on Facebook or not. Responses reported on 3 scale that are “yes”, “no” and “I don’t know”. Following Subrahmanyam et al. (2008), the results of this question confirms the fact that people don’t want to use Facebook to meet strangers. In Figure 10 % 60.00 of the respondents reported that they are not willing to meet strangers on Facebook. In addition to this question, respondents were asked from whom they accept friend invitations on Facebook. Less than %2.00 of respondents indicated that they accept the invitations which come from strangers. Mainly, respondents declare that they add the friends that they do not see often, their close friends, their family and relatives to their Facebook friends’ lists. Besides accepting friend invitations, % 30.60 of respondents declare that they mainly send friend requests to their close friends. (For more statistics, see Appendix B)

Moreover, in order to test the network connections of respondents, it is asked how often they send and receive messages with whom on Facebook. Responses reported on five-point Likert Scale (never, rarely, sometimes, often, always). Importantly, respondents answered that they never send messages to the person they never met before with a percentage of 80.85. Also, they answered that they often send messages to their close friends(% 47.06). (for more statistics, see Appendix C)

The following question is asked to respondents: “On your Facebook account which information you shared with whom?” (for more statistics, see Appendix A). Respondents generally share their profile photo and their real name with everyone, respectively with a percentage of 54 and 67.29. They make visible their hometown and their e-mail addresses mostly to their friends respectively with a percentage of 45.63 and 55.45. In addition, respondents specify that they share information on the sections that are the network they joined, friends, art and entertainment, interest, workplace and education mostly with their friends.

Most of the respondents do not prefer to share their relationship status with any one (% 47.49) while some tends to share it with their friends (% 38). Although respondents seem to share most of the profile information with their friends, they are not willing to share their home addresses, cellular phone number and instant messenger names with anyone. In a similar study, Dwyer et al. (2007) found that instant messenger name is the most chosen information that young adults do not want to share it with any one in social network sites. However, in this

study respondent chose cellular phone number with the highest percentage (73.96) that they do not want to share with anyone.

Socio Psychological Factors

Respondents were asked to choose the most appropriate option reported on five-point Likert scale. The questions are designed to measure the socio psychological factors in terms of need to belong, internet self-efficacy and collective self-esteem. (For statistics, see Appendix D)

Trust and Privacy Concern

This section is designed to measure whether respondents have trust in Facebook and the members in Facebook or not. Respondents were asked that if they find the members' profiles accurate and if they have anxiety about the comments and posts done by others about themselves. In addition, there are questions about trustworthiness of Facebook. Overall, the majority of respondents think that their information is kept safe by Facebook, they trust the social network site more than they trust the members of social network site. (For statistics, see Appendix E)

3.4 NodeXL algorithm for sample testing

Hansen et al. (2011) states that social media provides a platform in which invisible ties between individuals became visible and machine readable. The science of social network analysis is able to capture graphical maps of social relationships in social networks. The focus of social network analysis is between, not within people. Therefore, technology can explain human interaction in such networks in terms of clustering, mapping and calculating measures of network's size, shape and density.

Each individual is called vertex in social network analysis at Facebook. Hansen et al (2011) identifies degree centrality as count of the total number of connections linked to a vertex. When the connections between vertexes are dense, the clustering coefficient will be high. In other words Hansen et al (2011: 41) claims that“ if your friends are friends with each other, you have a high clustering coefficient in your Facebook network”

The reason of the Clustering Detection Algorithm is as follows: If it is needed to find the clustering coefficient of X's Facebook social network, firstly a triangle matrix should be created. Secondly, all friends of X are placed vertically, then except the first friend of X in vertical dimension, the other friends of X are placed horizontally. Moreover, a row table is created ($r[i]$ array) in order to place the elements in the horizontal dimension of triangular matrix. Similarly, a column table ($c[i]$ array) is created in order to place the elements in vertical dimension of triangular matrix. Finally, by starting from first element of each array table, the elements are compared if they have a connection with each other then a tie is placed between them. This process is continued until the last elements are compared. The schematic representation of algorithm is displayed as below.

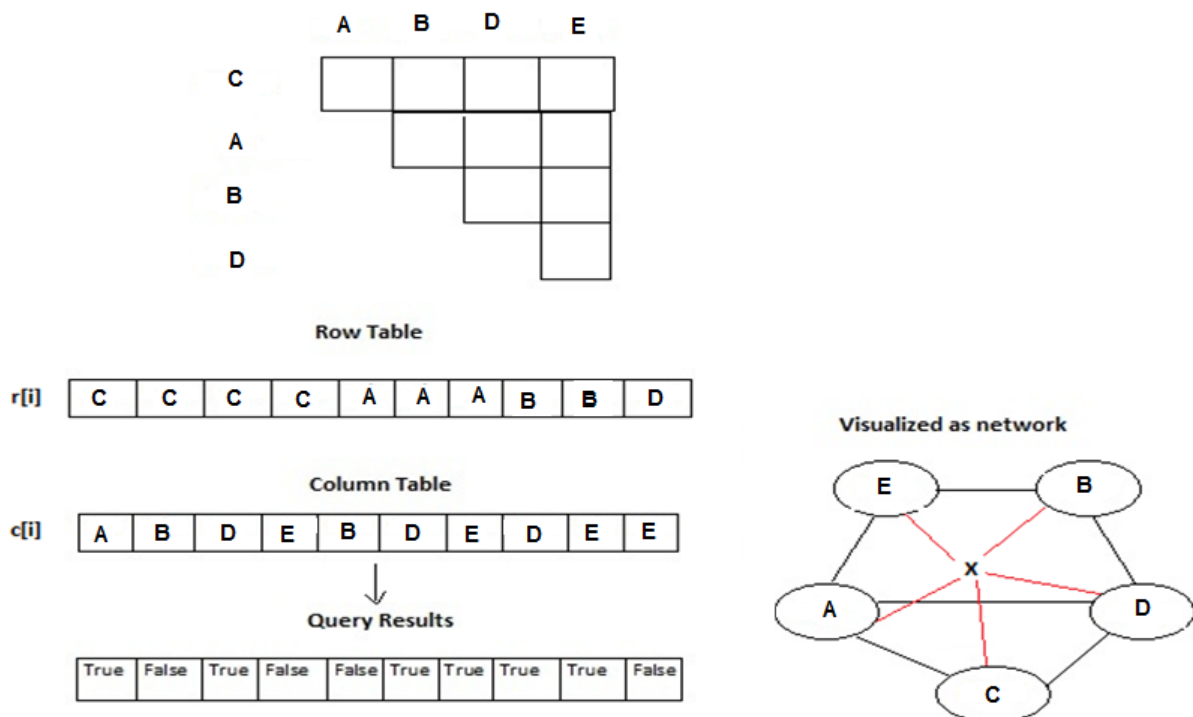


Figure 10: Clustering and Community Detection Algorithm

Source: Hansen et al. (2011)

The symantic representation of clustering and community detection algorithm is displayed as the following.

```

for (i=0, i++, i > (length. FriendsOfX ))
{
    if (r[i] connected with c[i])
        return True
    else
        return False
}

```

In this study, NodeXL tool is used for two reasons. First, one is to test whether the survey sample is chosen randomly in order to get sufficient data from respondents. The second one is to test whether the answers of one of the survey participant match with his/her responses in the survey.

It is important to choose the survey sample randomly. People who have close connections with each other are assumed to have common interests and thoughts. Therefore, if the survey is conducted among people who have similar social class background, the results of the survey may be deceiving. Thus, it is asked to participants whether they want to be volunteer in the next phase of the study. 36 of them accepted to be added by the study's Facebook account. The sample Facebook network graph of participants is displayed below.

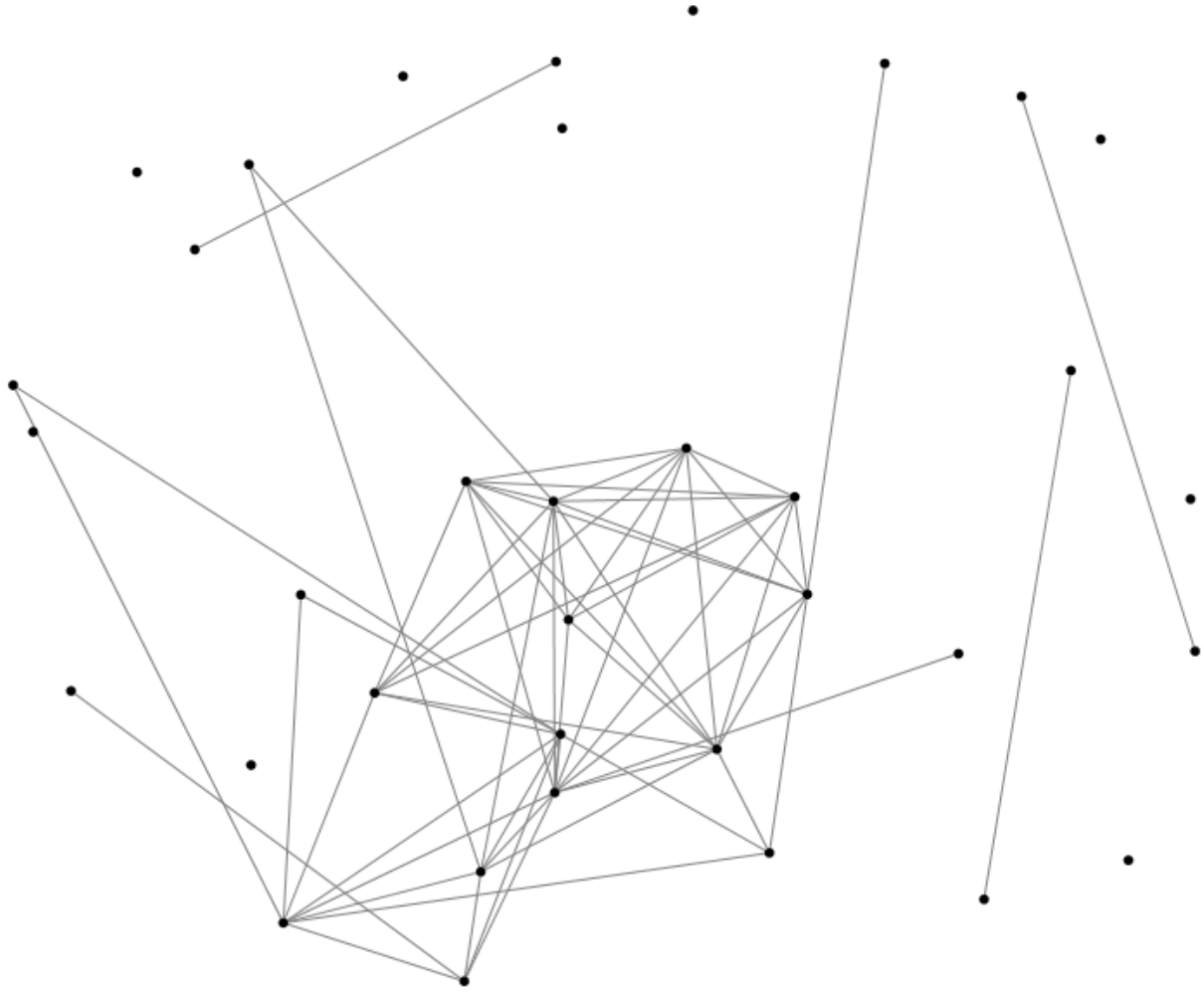


Figure 11: Sample Network Graph of Survey's Respondents

There are 7 vertexes which don't have any connections out of 36 vertexes. The average clustering coefficient of this network graph is 0.333. The maximum clustering coefficient is 1 with 0.396 standard deviation and 0.157 variation. Thus, it can be estimated that whole survey sample is chosen efficiently. Furthermore, the average degree of the sample network graph of participants is 3 and the maximum degree coefficient is 12 with 4.0 standard deviation and 14 variation. As it is explained earlier, degree stands for the number of connections of the vertex, the average degree coefficient of this graph is considered to be low with regard to other degree coefficients. Finally, the sample network graph of survey's participants is analyzed in terms of clustering and degree coefficients and it is proved that participant sample is efficient for data gathering.

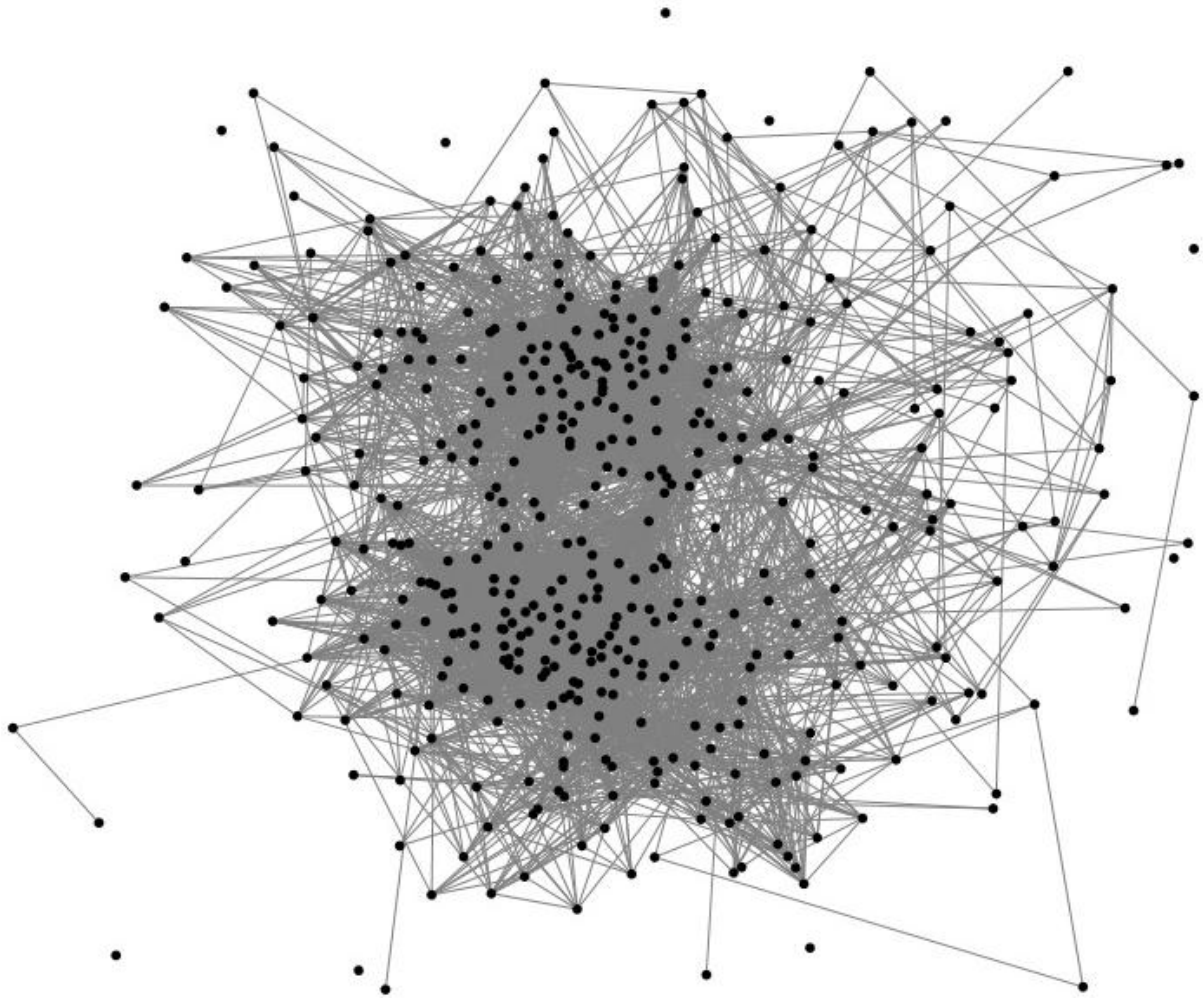


Figure 12: The Facebook Social Network Graph of One the Survey Respondent

This random volunteer has 446 friends on Facebook. 10 of the friends have no ties with other friends in other words their degree coefficient in the figure above is 0.00. Average clustering coefficient of this graph is 0.608 (with a variation of 0.049 and standard deviation of 0.222) and there 12 vertexes (friends) which have a 0.00 clustering coefficient. The average and maximum degree coefficient of the graph above are respectively 25 and 89 (Standard deviation =21 and variation= 439). This respondent's network is considered as homogenous network because there only 10 friends who have no ties with other. The rest of friends are generally friends with respondents' other friends. By analyzing the respondents' survey results, it is proven that the answers are reported on direct communication with only close friends.

4. Regression results and conclusion

4.1 Regression Results

In Table 1, I present the estimation results of my regression analysis. The first column in Table 1 shows the parameter estimates for social bridging. The results show that trust and privacy concerns, being a female, and the number of hours spent in Facebook are significant determinants of social bridging. The results reveal that being a female is negatively associated with the probability of bridging social capital. In addition to this, the number of hours spent on Facebook significantly increases and trust and privacy concerns significantly decrease the probability of engaging in bridging social capital. For example, an hour increase in the hours spent in Facebook increases the probability of engaging in bridging social capital by 13 percentage points.

The second column in Table 1 presents the determinants of bonding social capital. The results show that none of the variables is significant determinants of bonding social capital at the conventional significance levels.

The third column shows the estimates for social degree measured by the number of friends that the respondent has. The results suggest that the number of hours spent on Facebook and belonging to high-income class significantly increase the network size (degree). On the other hand, being a female is negatively related to the network size.

Table 1: Regression Results on Social Capital

	Outcome		
	Bridging Social Capital	Bonding Social Capital	Degree
Trust & Priv concerned	0.248 (0.099)**	0.019 (0.072)	13.872 (38.128)
age	0.023 (0.019)	0.015 (0.014)	-9.878 (7.329)
married	-0.233 (0.157)	0.135 (0.114)	75.435 (60.592)
female	-0.292 (0.101)***	-0.049 (0.074)	-89.676 (39.660)**
Socioeconomic Status2	-0.117 (0.364)	-0.058 (0.264)	-57.147 (140.204)
Socioeconomic Status3	0.121 (0.340)	-0.102 (0.247)	41.401 (131.029)
Socioeconomic Status4	0.163 (0.340)	-0.102 (0.247)	93.026 (131.029)
Socioeconomic Status5	0.530 (0.415)	0.059 (0.301)	331.878 (159.827)**
Socioeconomic Status6	-0.625 (0.561)	0.036 (0.407)	258.380 (216.330)
Sociopsychology	0.028 (0.093)	-0.034 (0.068)	47.050 (36.055)
Household size	-0.037 (0.044)	0.008 (0.032)	-21.552 (16.960)
facebook hours	0.133 (0.032)***	0.028 (0.023)	46.969 (12.618)***
educ1	-0.111 (0.223)	0.175 (0.162)	-54.659 (85.914)
educ2	-0.087 (0.107)	0.070 (0.078)	11.240 (41.511)
Constant	-0.240 (0.635)***	0.076 (0.008)***	532.310 (246.128)**
No. of obs.	97	97	96
R ²	0.317	0.082	0.357

Standard errors reported in the parenthesis. The signs ***, **, * indicate the statistical significance at the 1, 5, and 10 percent significance levels, respectively.

4.2 Conclusion

This study confirms that trust and privacy concerns and socioeconomic status are determinants of social capital. The results show that trust and privacy concerns negatively affect bridging social capital so the study's second hypothesis is interpreted as "Trust and privacy concerns have negative impact on bridging social capital". The respondents with high socioeconomic status have larger network size so first hypothesis can be interpreted as "higher socioeconomic status will be positively related to network size." There have been found no significant determinant for bonding social capital. Thus, the model of determinants of social capital on Facebook is displayed as below.

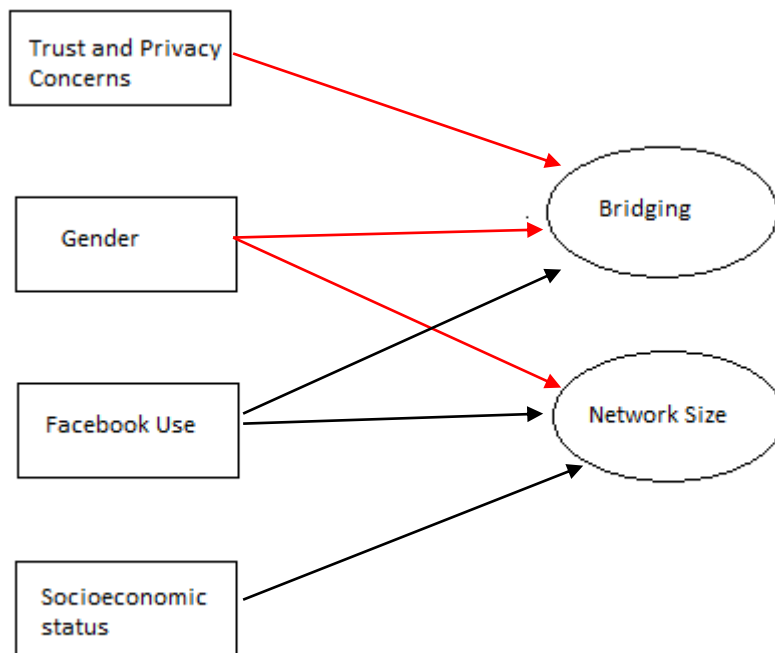


Figure 13: The Determinants of Bridging Social Capital and Network Size

Like other similar studies, Facebook use is a significant determinant on social capital. In this study, the socio-psychological factors cannot be associated with social capital. However, Facebook use depends on psychological factors as it is indicated in other studies. The people with lower self-esteem have more tendencies to spend more hours on Facebook to increase their self-esteem and maximize their bridging social capital because positive feedbacks on their profiles help them to develop more self-esteem (Steinfelds et al. (2008); Valkenburg,

Peter and Schouten (2010)). Furthermore, being female is negatively associated with bridging social capital. Unlike similar studies, in the case of Turkey gender plays a crucial role in social capital on Facebook. This result is not surprising if we think that the rate of subordination of women in Turkey is higher than in other countries because the women in Turkey excluded in social life because of patriarchy so making social ties are harder than males. For future work, the relationship between gender and social capital on other social network sites will be examined in order to test robustness of our findings.

The findings reported in this study will hopefully contribute to the larger understanding of social capital in Facebook and other social network sites.

References

- Blanchard, Anita (2004). *The Effects of Dispersed Virtual Communities on Face-to-Face Social Capital*, in Social Capital and Information Technology, Huysman, Marleen and Volker Wulf, eds, MA: The MIT Press.
- Brooks, Brandon, Howard T. Welser, Bernie Hogan & Scott Titsworth (2011). *Socioeconomic Status Updates: Family SES and Emergent Social Capital in College Student Facebook Networks*. Information, Communication & Society 2011, pp. 1-21.
- Burke, Moira, Cameron Marlow & Thomas Lento (2010). *Social Network Activity and Social Well-Being*. CHI 2010, April 10-15.
- Coleman, James. (1988). *Social Capital in the Creation of Human Capital*. American Journal of Sociology, Vol:94, pp. 95-120
- Dwyer, Catherine, Starr Hiltz & Katia Passerini.(2007).*Trust and privacy concern within social networking sites: A comparison of Facebook and MySpace*, Proceedings of the Thirteenth Americas Conference on Information Systems, Keystone, Colorado
- Ellison,Nicole B., Charles Steinfield & Cliff Lampe. (2007).*The Benefits of Facebook "Friends:" Social Capital and College Students' Use of Online Social Network Sites*, International Communication Association, Vol.12, pp.1143-1168
- Charles Steinfield, Nicole B. Ellison and Cliff Lampe. (2008). *Social Capital, Self-Esteem, and Use of Online Social Network Sites: A Longitudinal Analysis*, Journal of Applied Developmental Psychology, Vol.29, pp. 434-445
- Erickson, B. H. (2001). "Good Networks and Good Jobs: the value of social capital to employers and Employees", in Social Capital: Theory and Research, eds N. Lin, K. Cook &R. S. Burt, Aldine De Gruyter, New York, pp. 127-157
- Gangadharbatla, Harsha (2008, Spring) .*Facebook me: Collective Self Esteem, Need To Belong, and Internet Self-Efficacy as Predictors of the Igeneration's Attitudes Toward Social Networking Sites*, Journal of Interactive Advertising, Vol.8 No.2, pp.5-15
- Hansen, Derek, Ben Shneiderman & Marc A. Smith. "Analyzing Social Media Networks with NodeXL: Insights from a Connected World", Burlington, MA: Morgan Kauffman, 2011.
- Helliwell, John F. & Robert D. Putnam (2004). *The Social Context of Well Being*, Philosophical Transactions of the Royal Society, 359 (1449), 1435-1446

Subrahmanyam, Kaveri, Stephanie M. Reich, Natalia Waechter & Guadalupe Espinoza. (2008). *Online and offline social networks: Use of social networking sites by emerging adults*, Journal of Applied Developmental Psychology, Vol.29, pp. 420–433

Kenneth W. Koput (2010). “Social Capital: An Introduction to Managing Networks”, Cheltenham: Edward Elgar Publishing.

Lusoli, Wainer & Romina Cachia (2009), “*Social Computing and Identity*”, The Impact of Social Computing on the EU Information Society and Economy, JRC Scientific and Technical Reports.

Michael, Siegrist & George Cvetkovich (2000). *Perception of Hazards: The Role of Social Trust and Knowledge*, Society for Risk Analysis, Vol. 20, No.5

Morrow, Virginia (1999). *Conceptualising Social Capital in Relation to the Well-Being of Children and Young People: a Critical Review*. The Editorial Board of the Sociological Review 1999, MA: Blackwell Publishers.

Putnam, Robert D. (2000). “Bowling Alone: The Collapse and revival of American Community”, New York: Simon & Schuster.

Valenzuela, Sebastian, Namsu Pak & Kerk F. Kee (2009). *Is There Social Capital in Social Network Site?: Facebook Use and College Students’ Life Satisfaction, Trust, and Participation*, Journal of Computer-Mediated Communication, Vol.14, pp.875-901

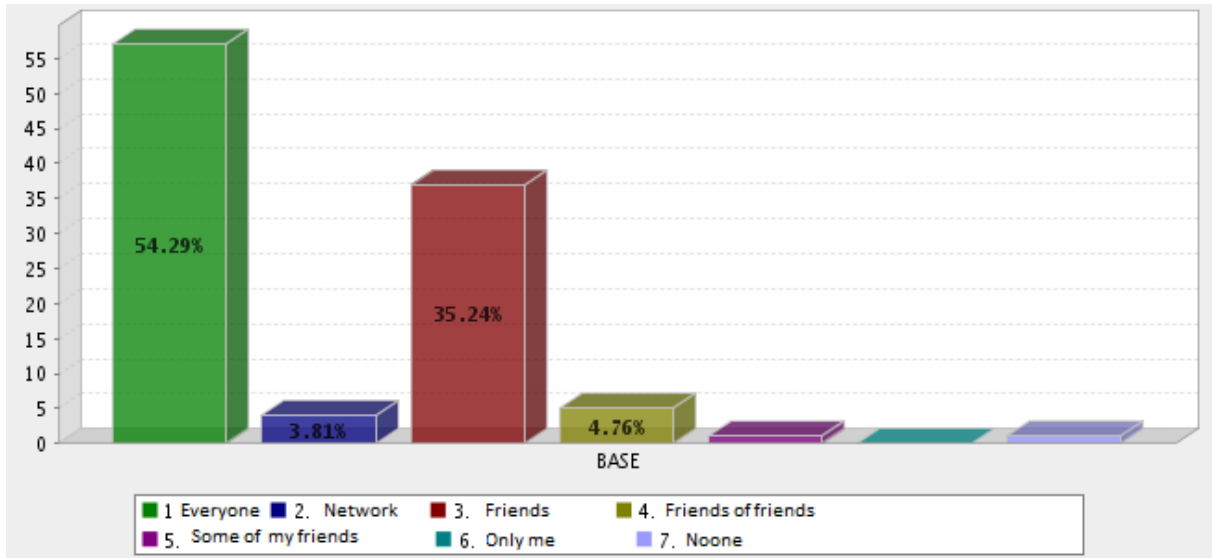
Valkenburg, Patti M., Jochen Peter and Alexander P. Schouten (2006). Friend Networking Sites and Their Relationship to Adolescents’ Well-Being and Social Self-Esteem. *Cyberpsychology & Behavior*, Vol. 9, No:5.

Zhao, Shanyang (2006). *Do Internet Users Have More Social Ties? A Call for Differentiated Analyses of Internet Use*. JCMC 11, Vol.3, pp. 844-862.

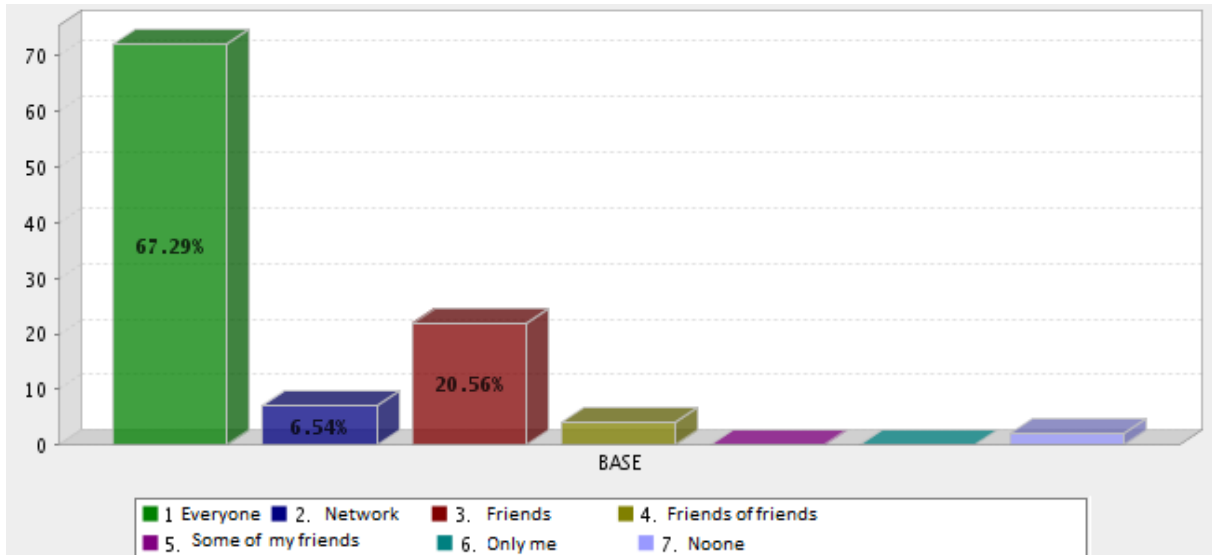
APPENDIX A

Facebook profilinizde aşağıdaki bilgilerinizden kimler hangilerini görebiliyor işaretleyiniz:

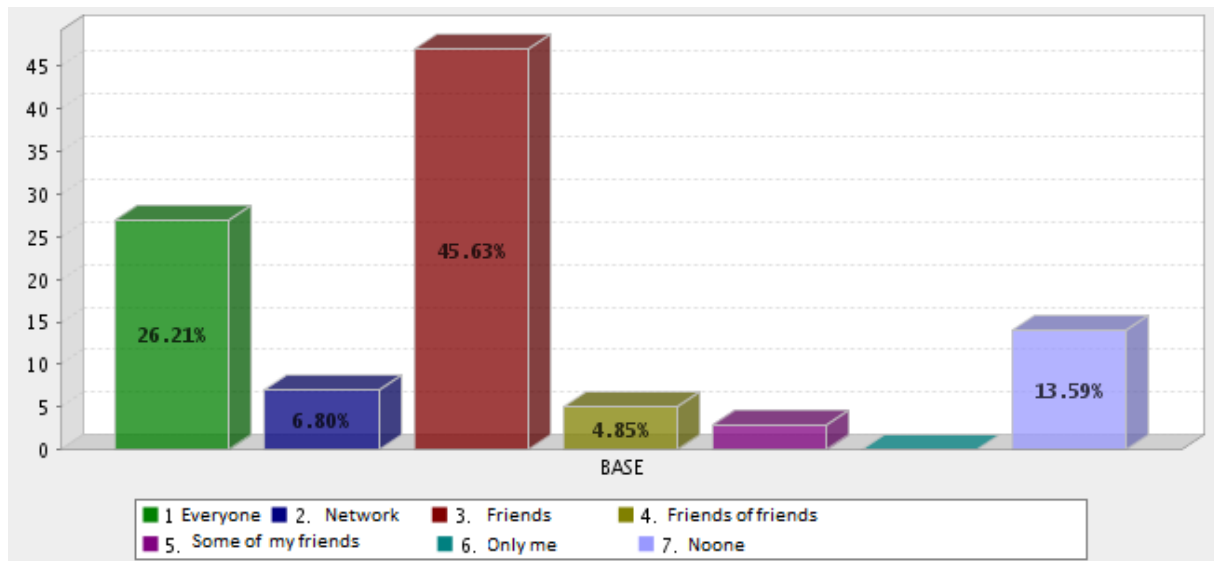
Profile Photo



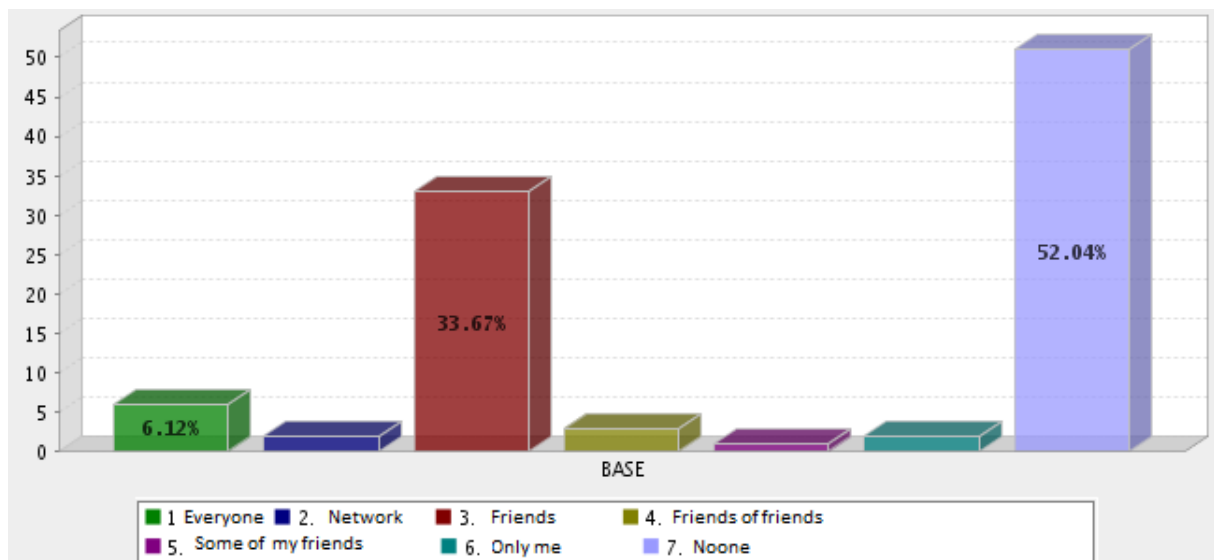
Real Name



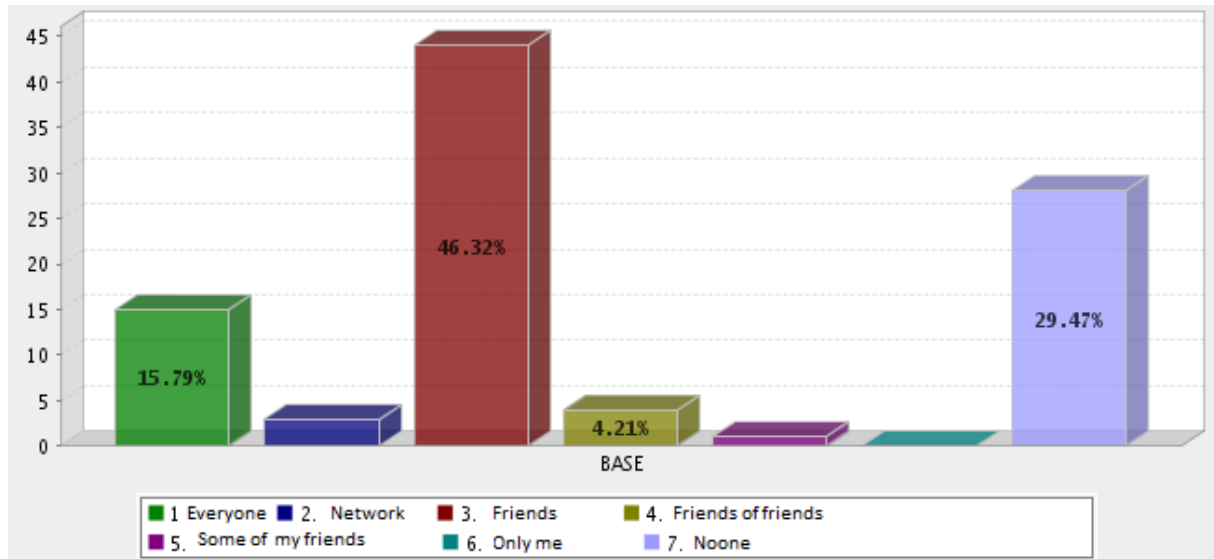
Hometown



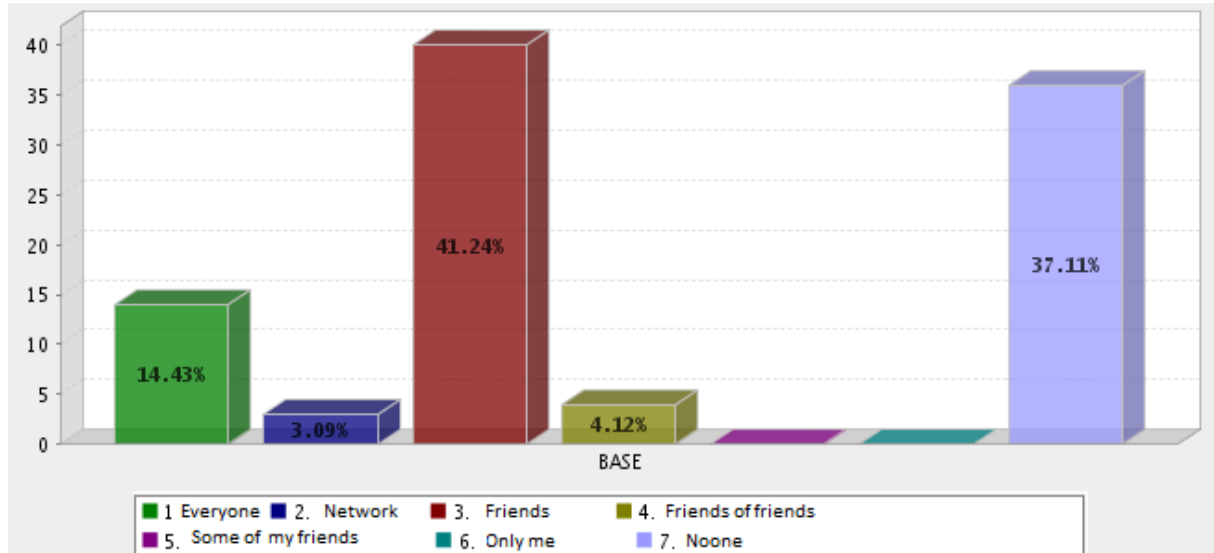
Address



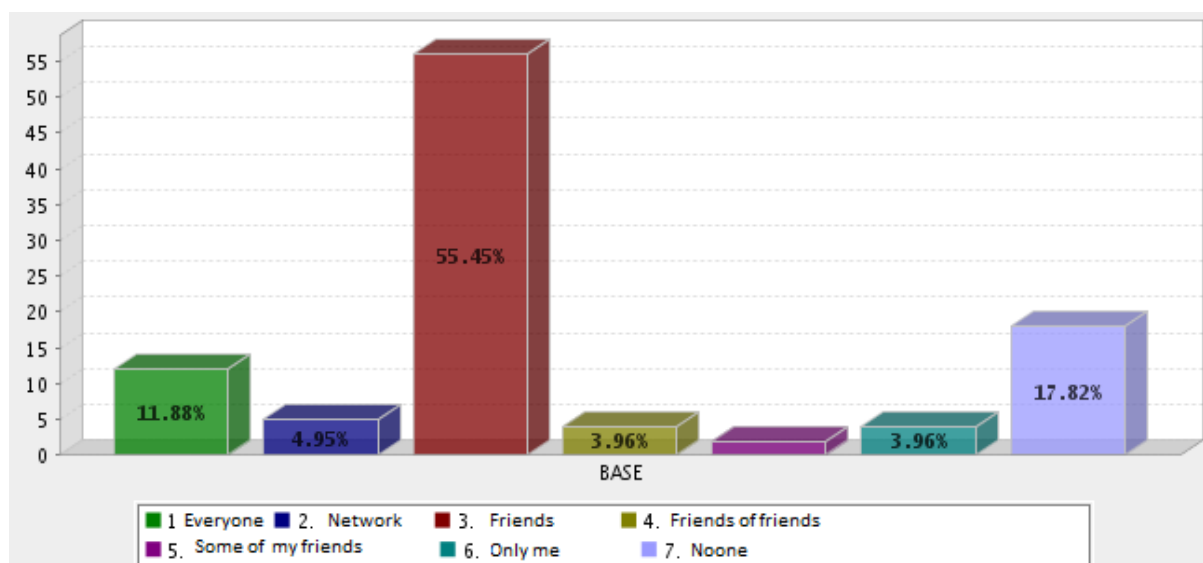
Workplace



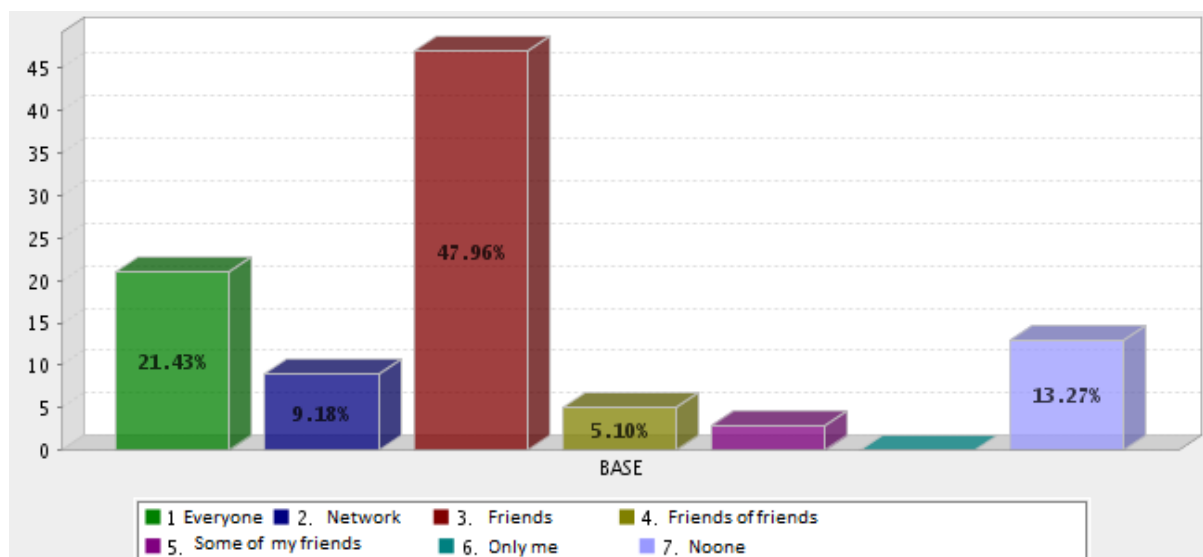
Çalıştığım pozisyon



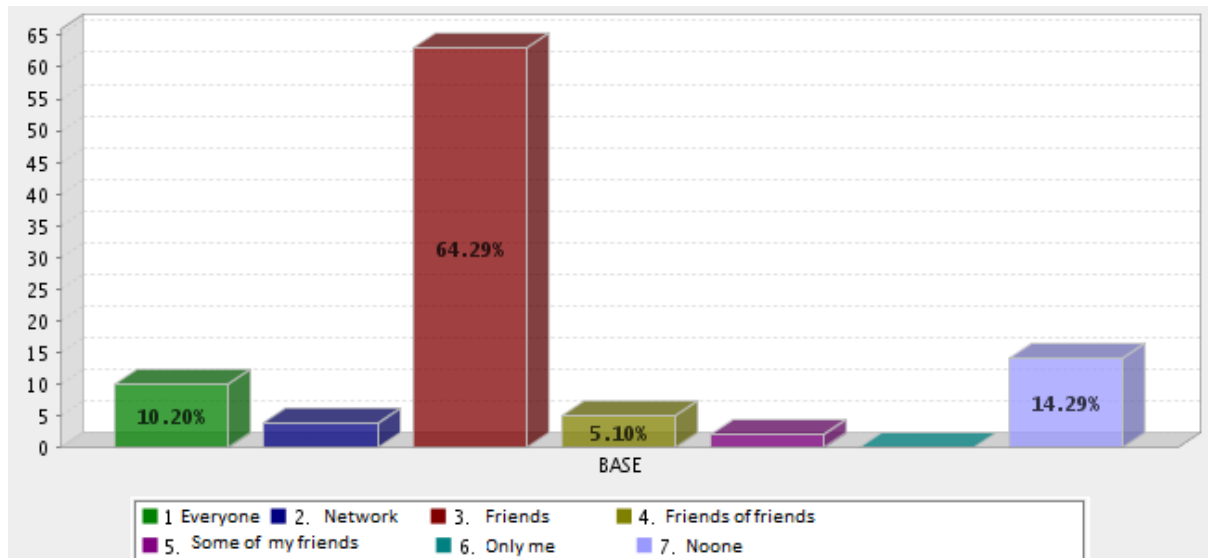
E-mail address



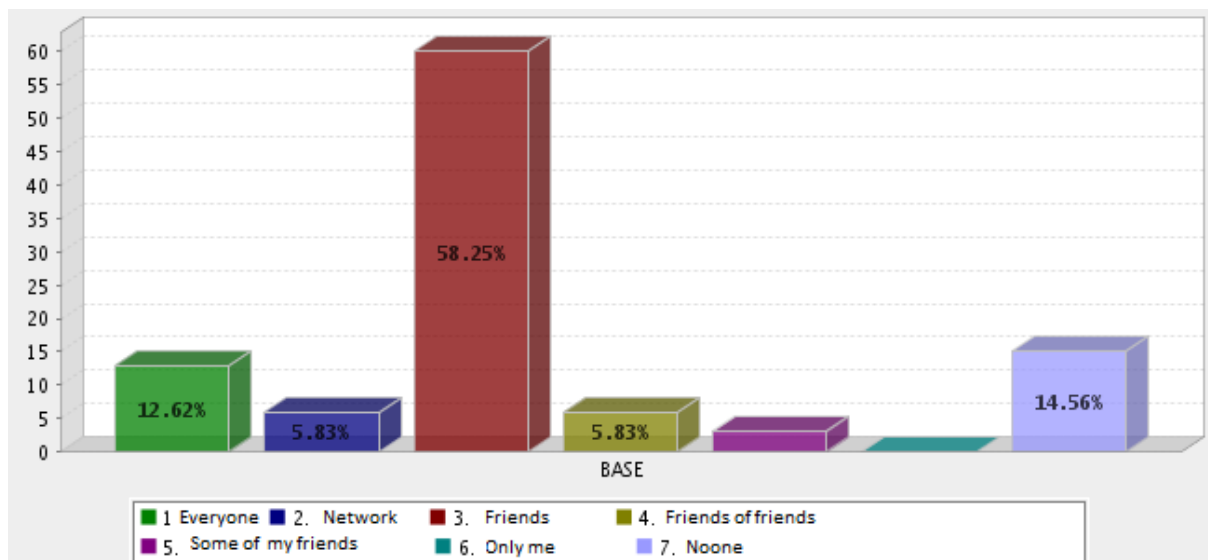
Networks



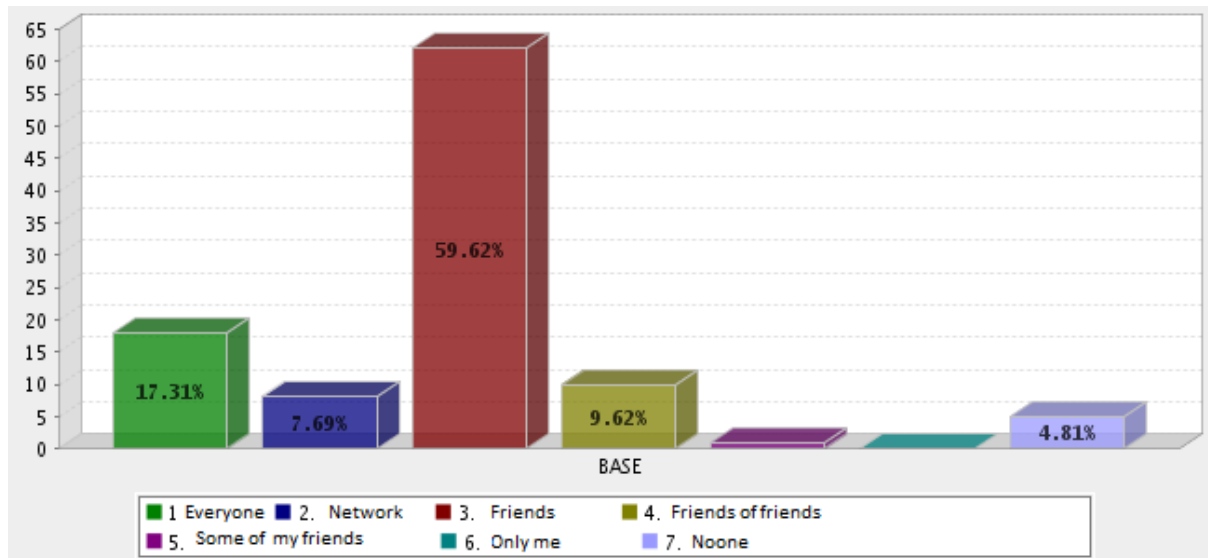
Art and Entertainment



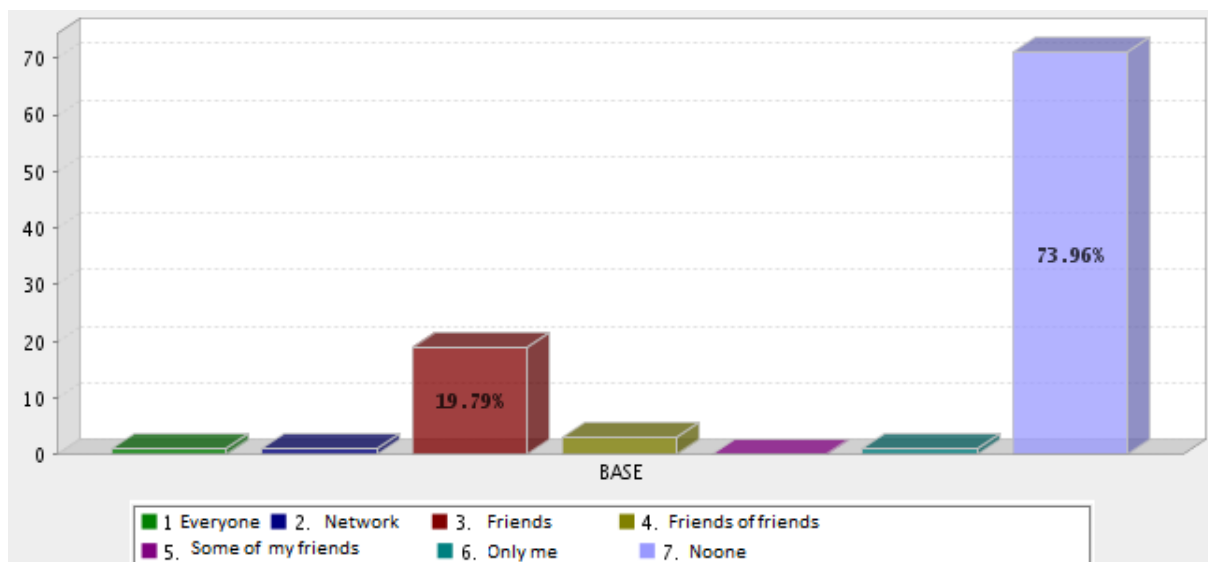
Interests



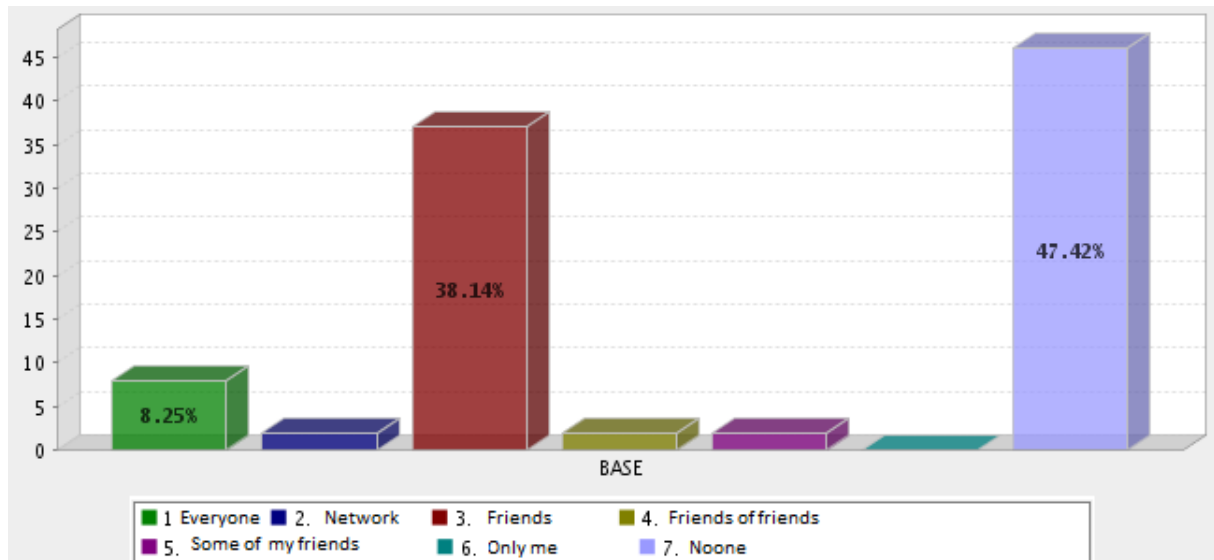
Education Information



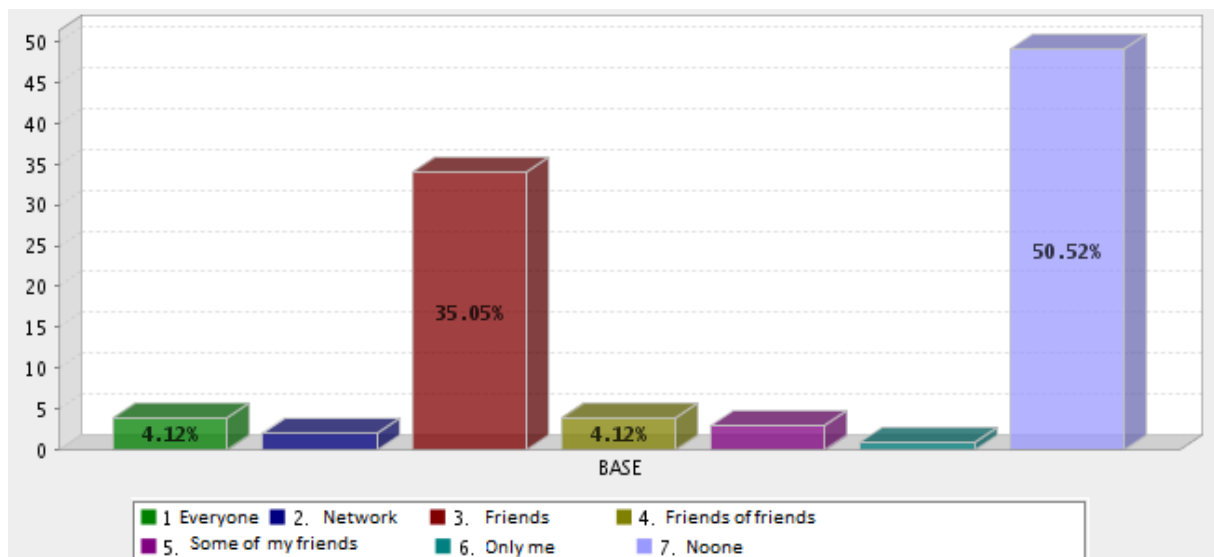
Cellular Phone Number



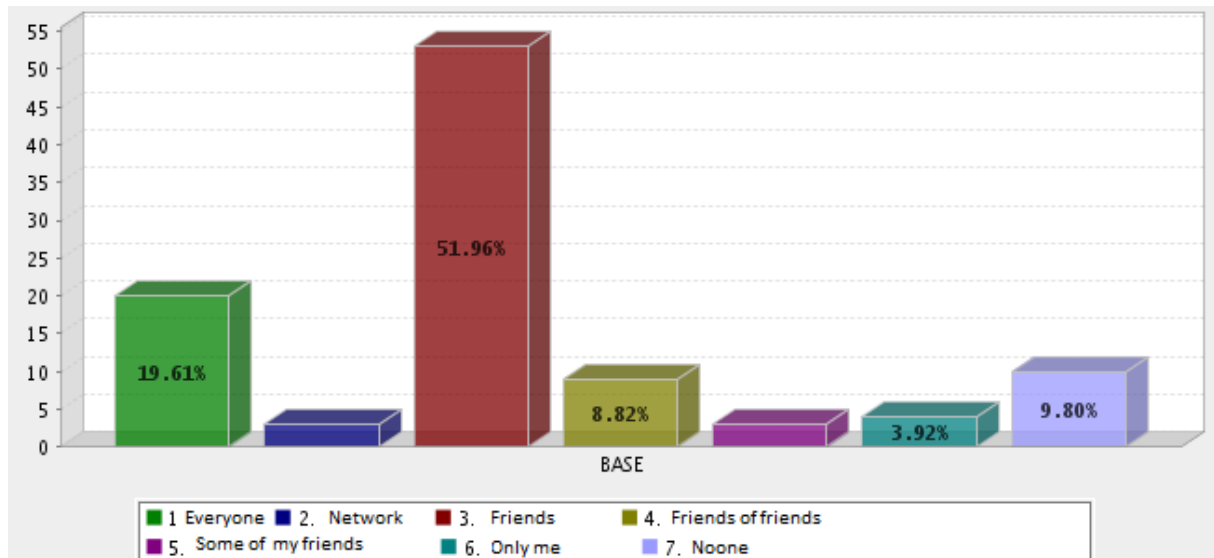
Relationship Status



Instant Messenger Name

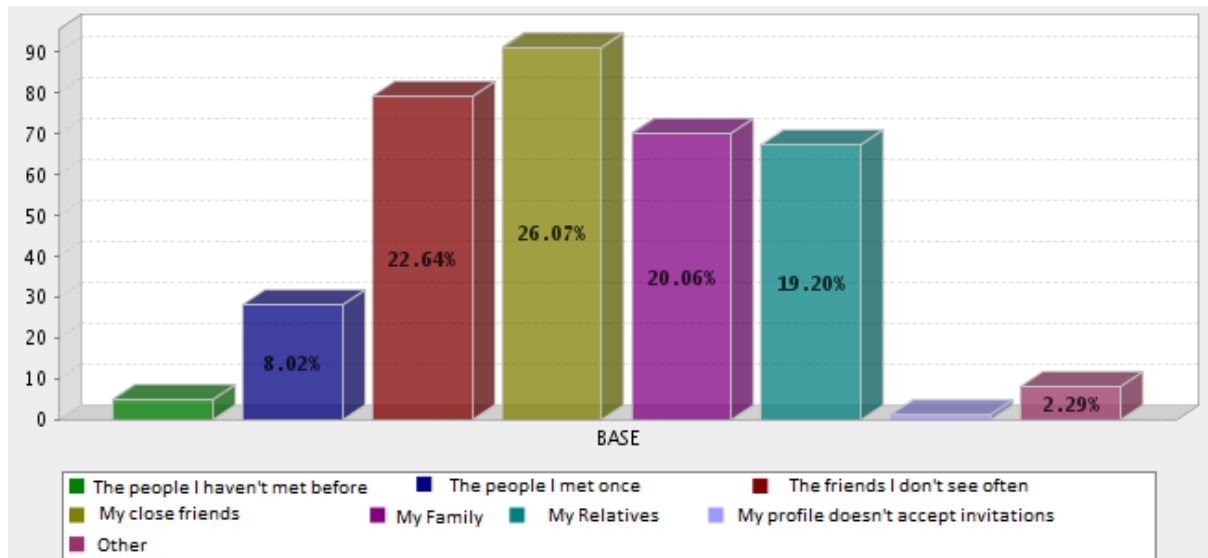


Friends

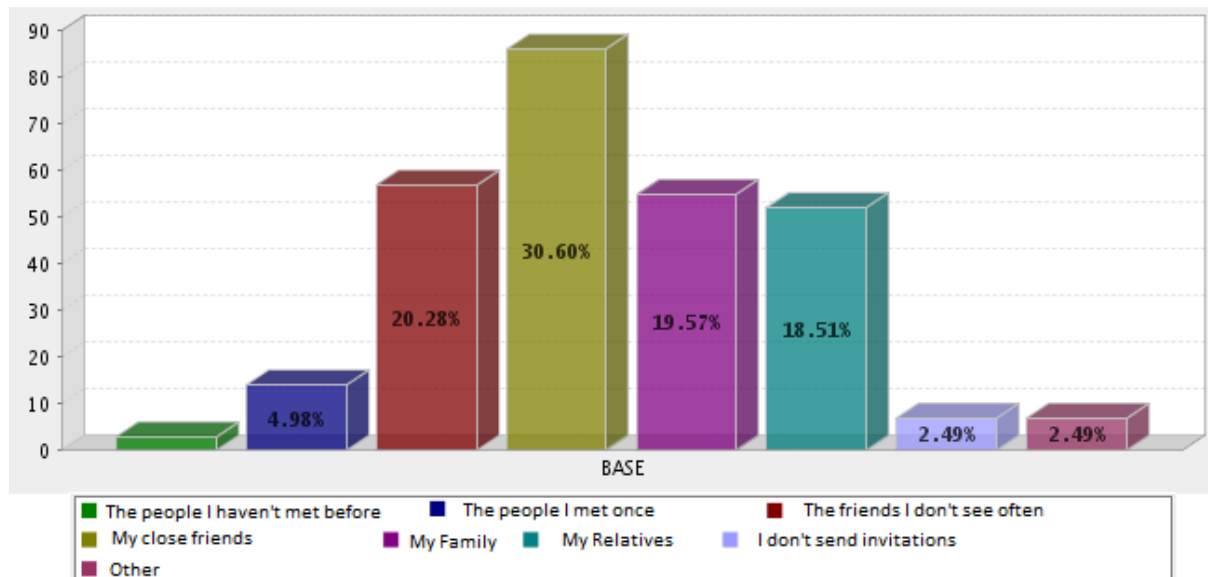


APPENDIX B

Whose friend invitations do you accept on Facebook?



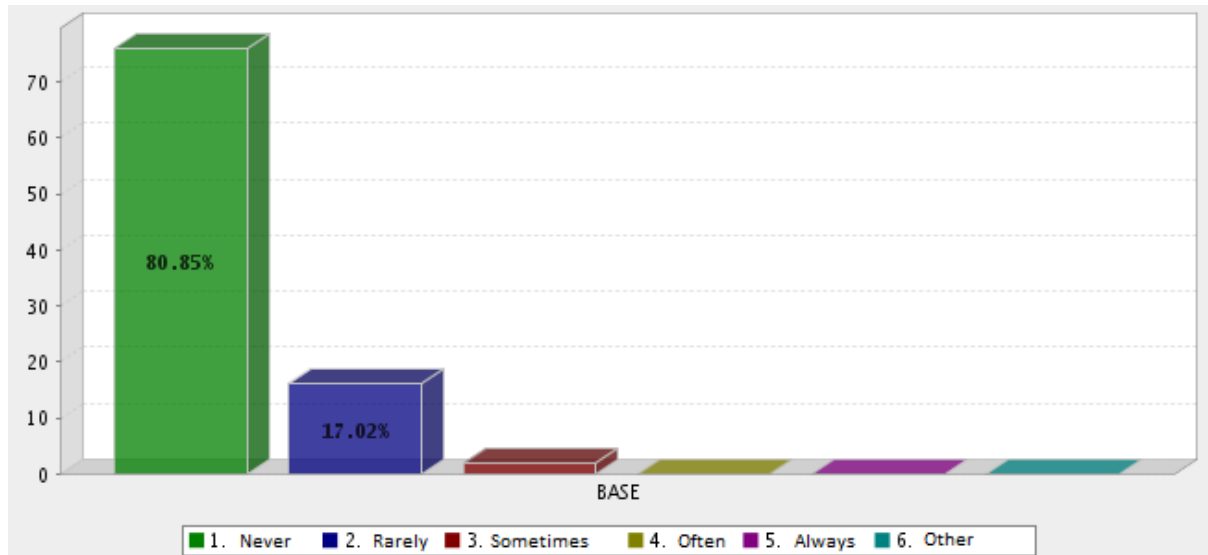
Who do you send friend invitations to on Facebook?



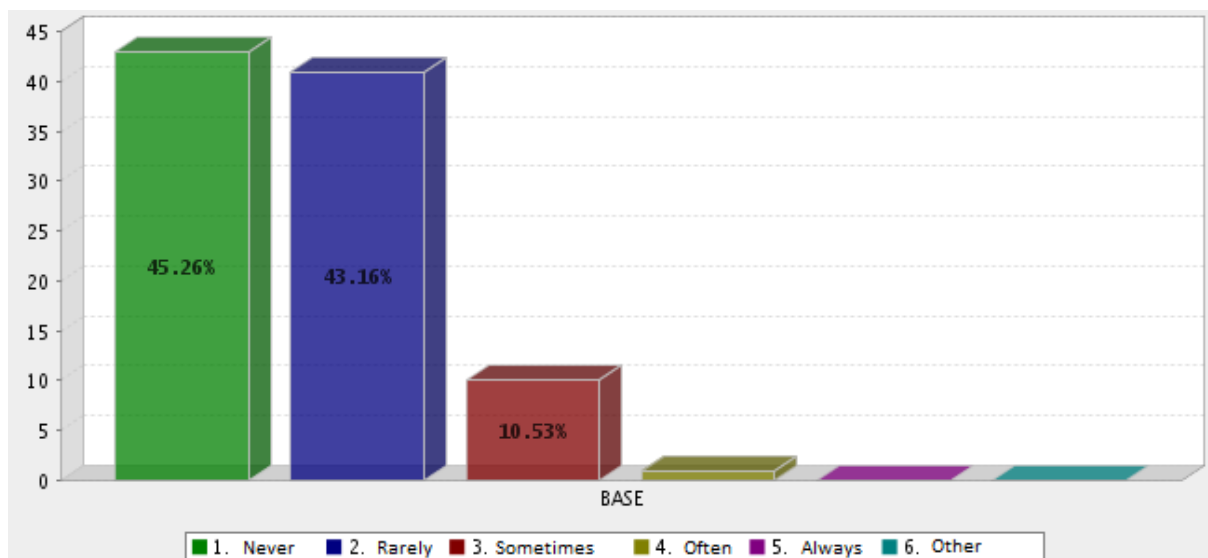
APPENDIX C

How often do you send or get messages on Facebook?

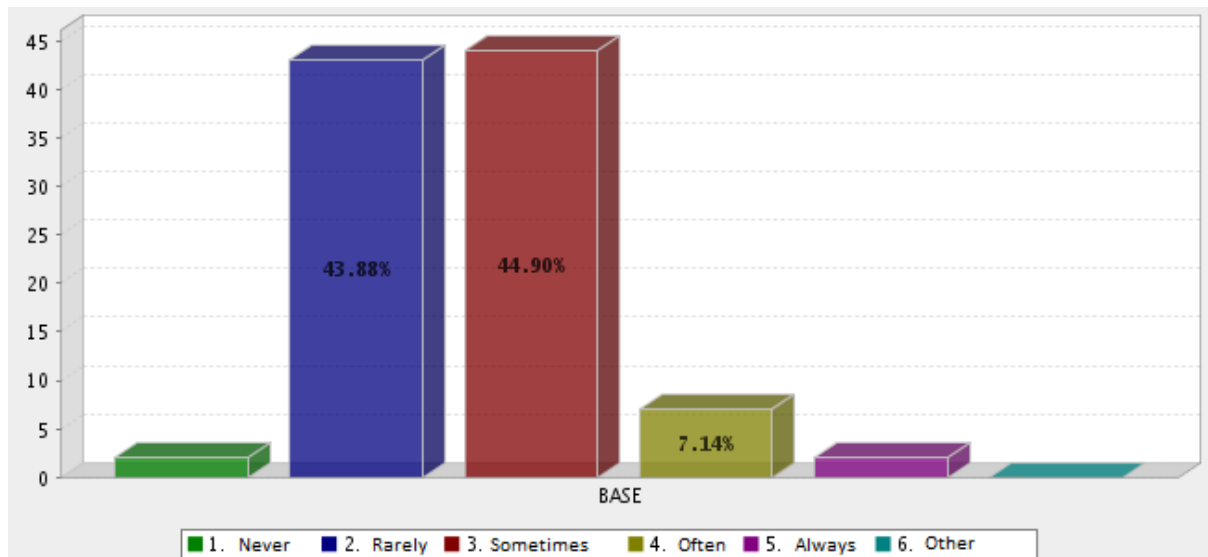
The people I haven't met before



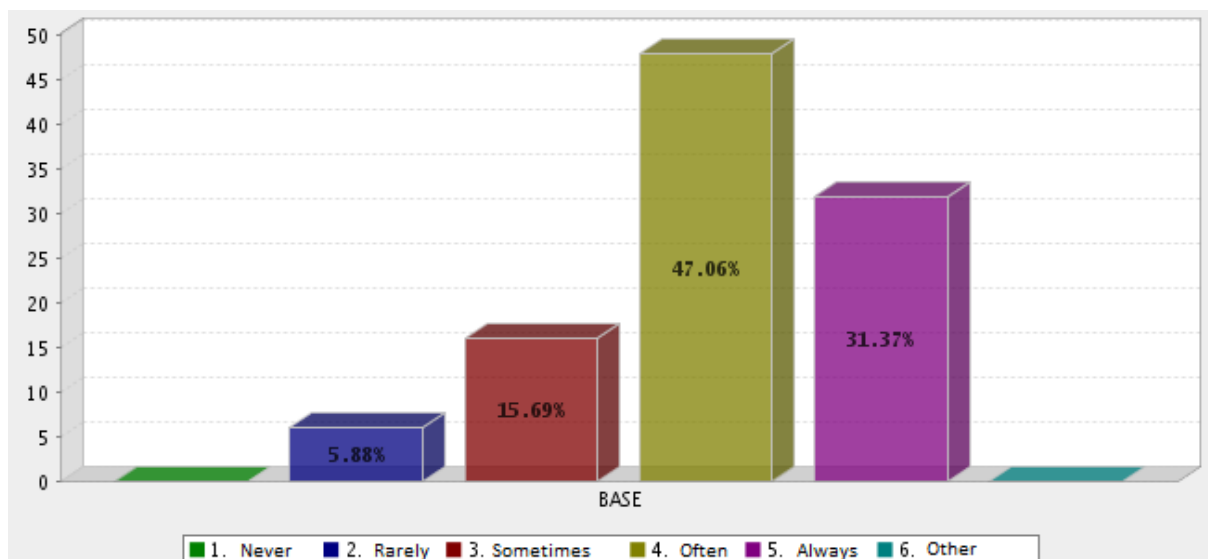
The people I met once



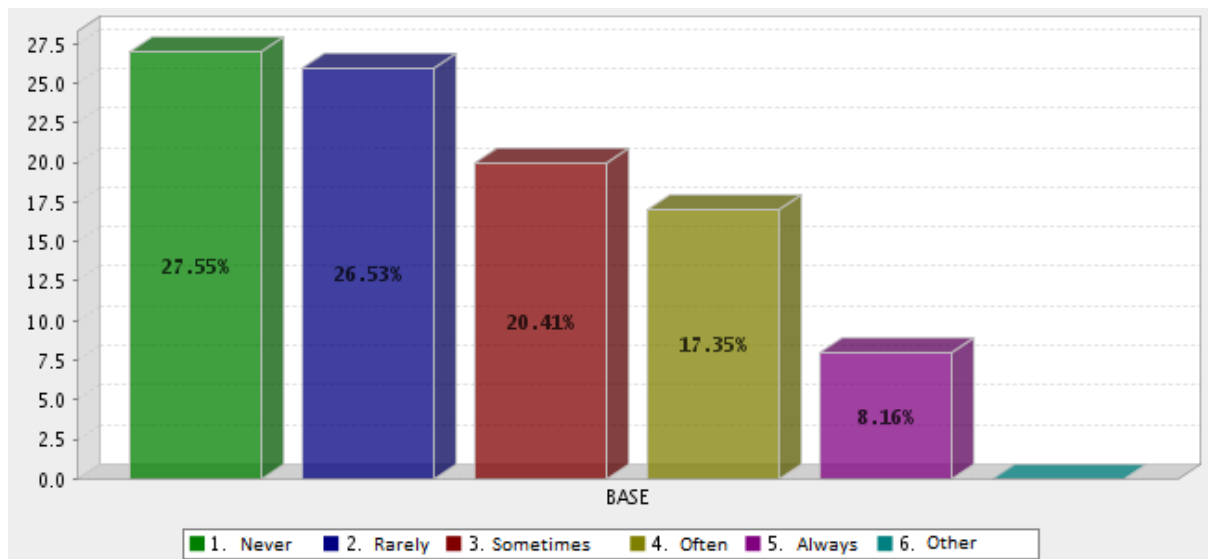
The friends I don't see often



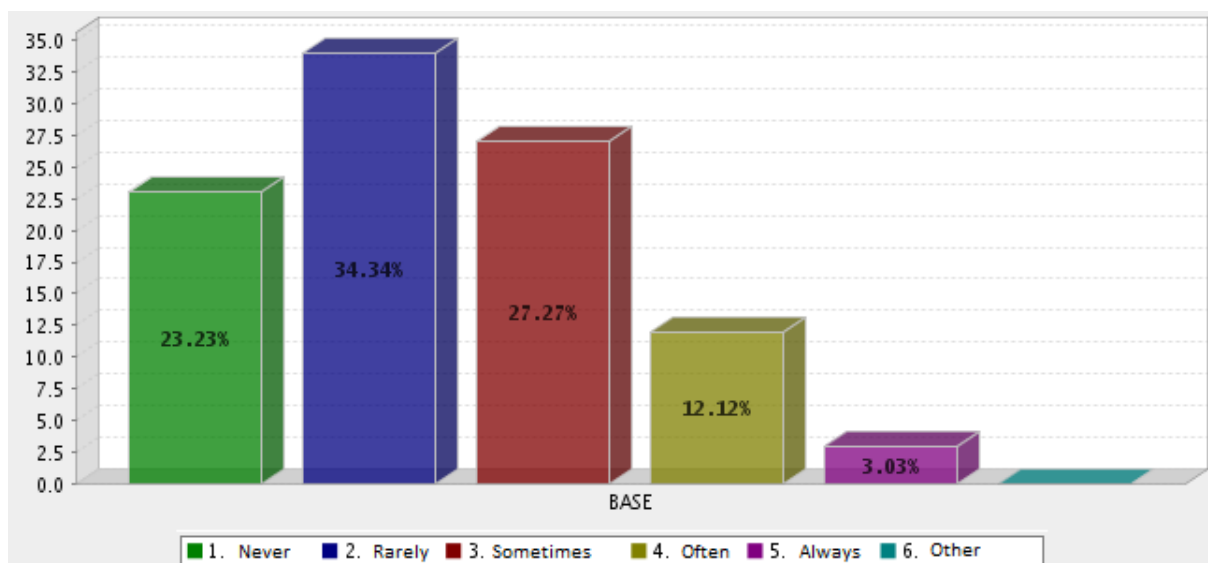
Close Friends



Family



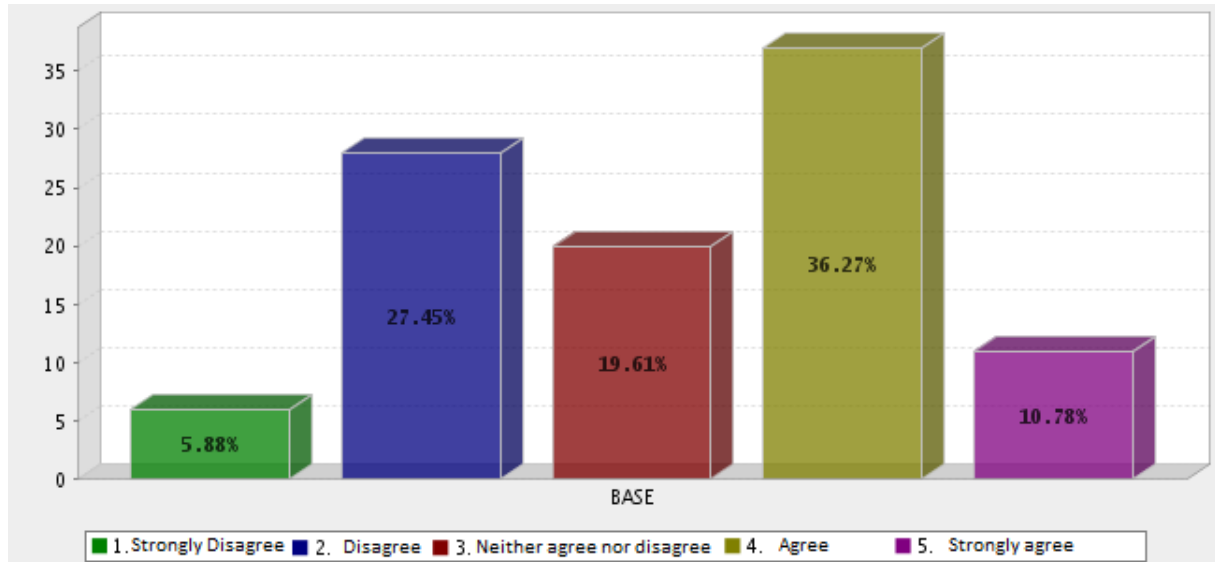
Relatives



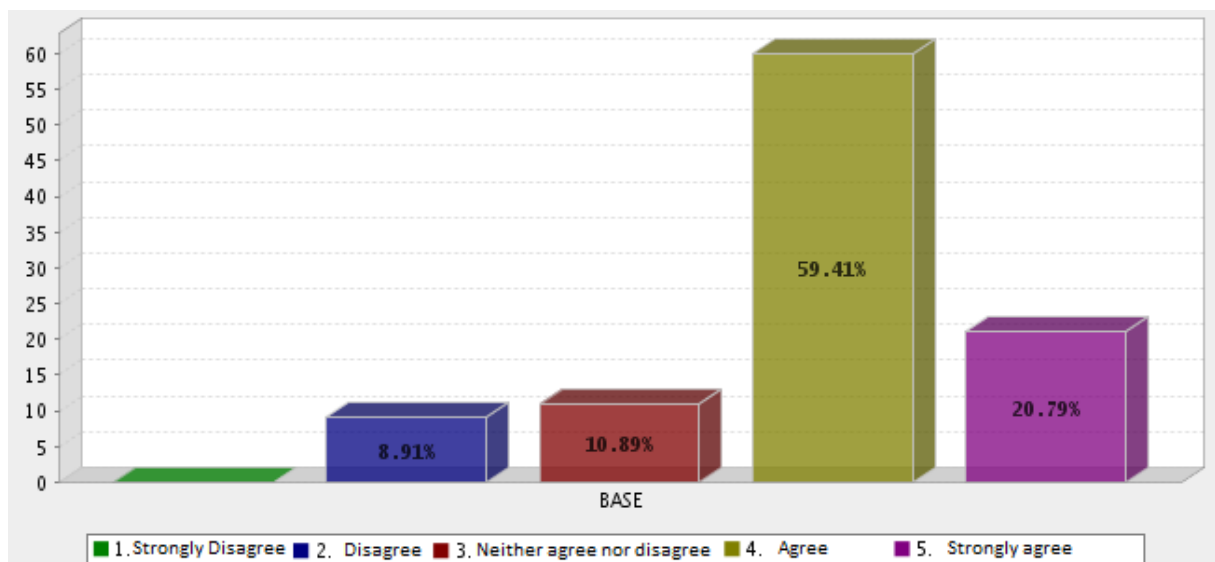
APPENDIX D

Result of Socio-Psychological Factors' Distributions

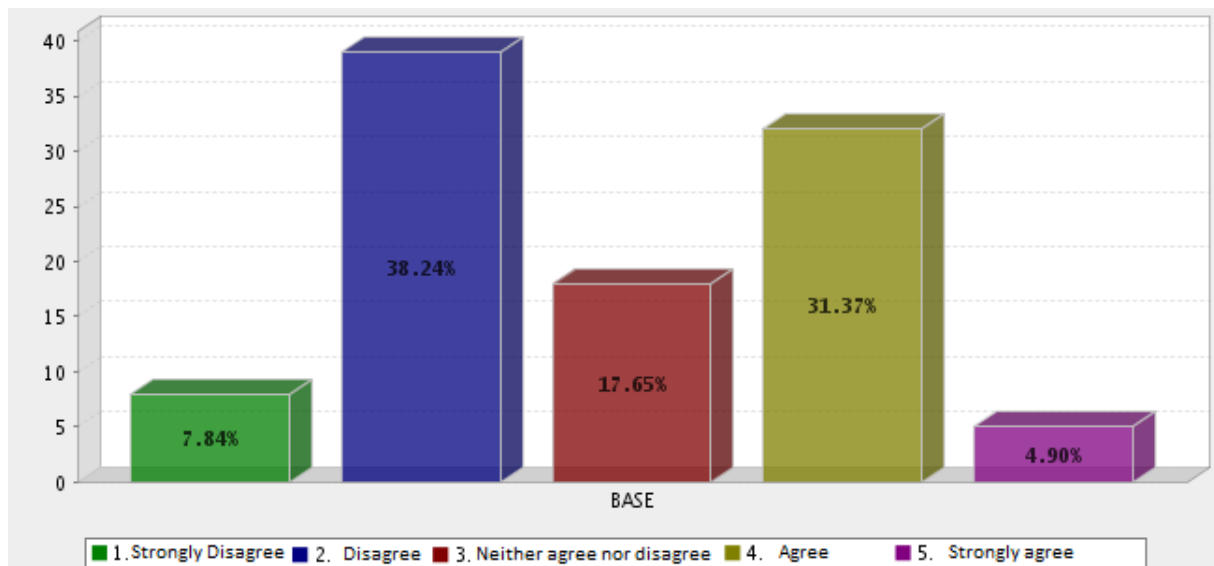
I don't prefer to be alone



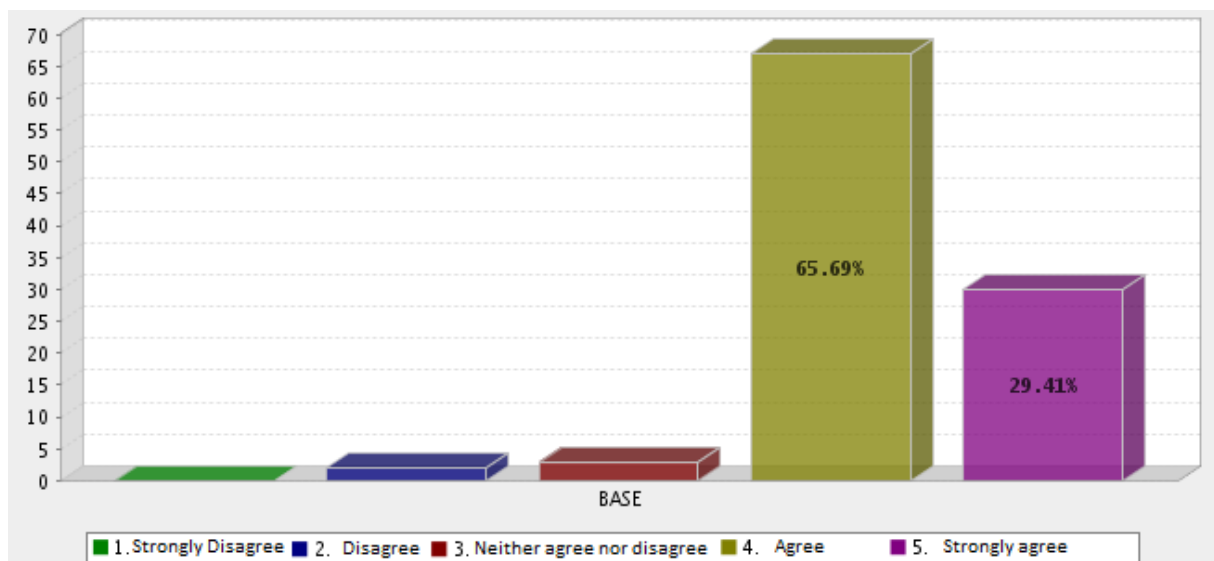
I like to be in touch with my friends all the time



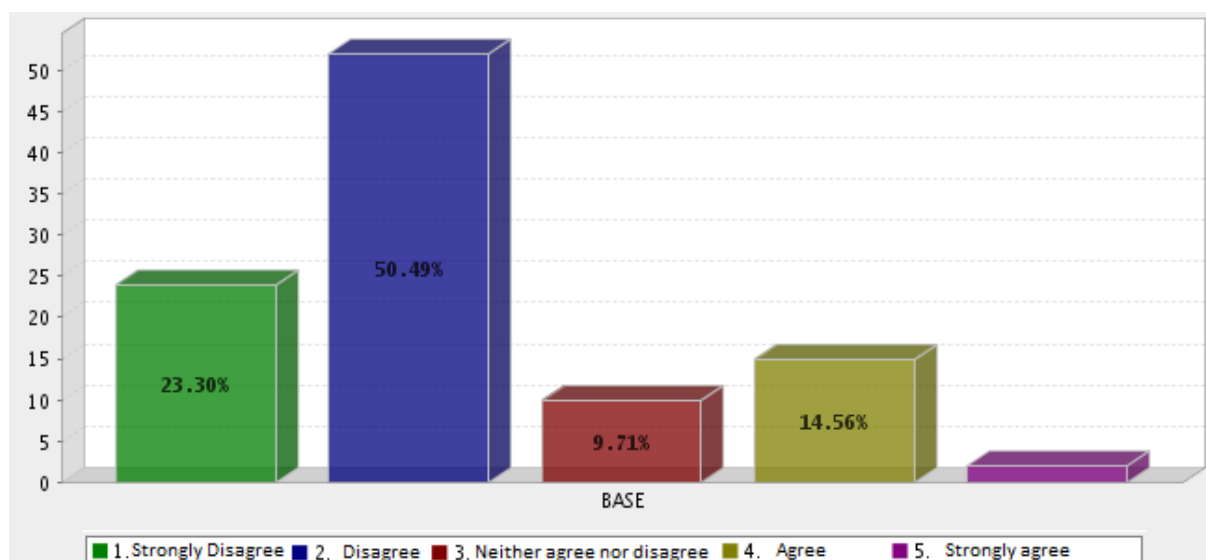
I like to find complex solutions to simple problems



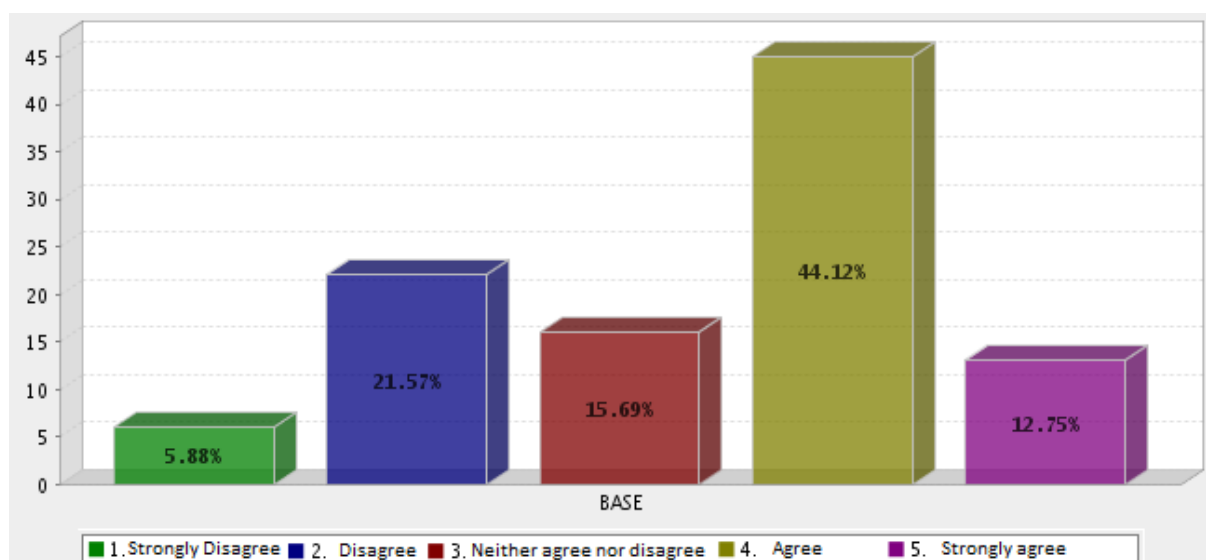
Learning new ways of thinking excites me much



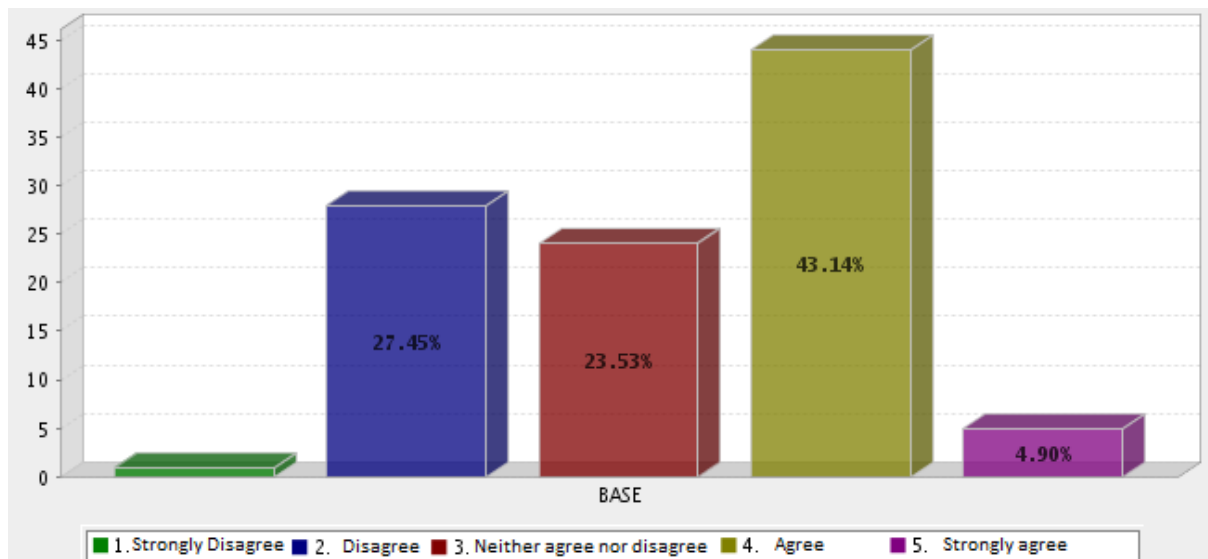
Thinking through different perspectives is not my style of having fun



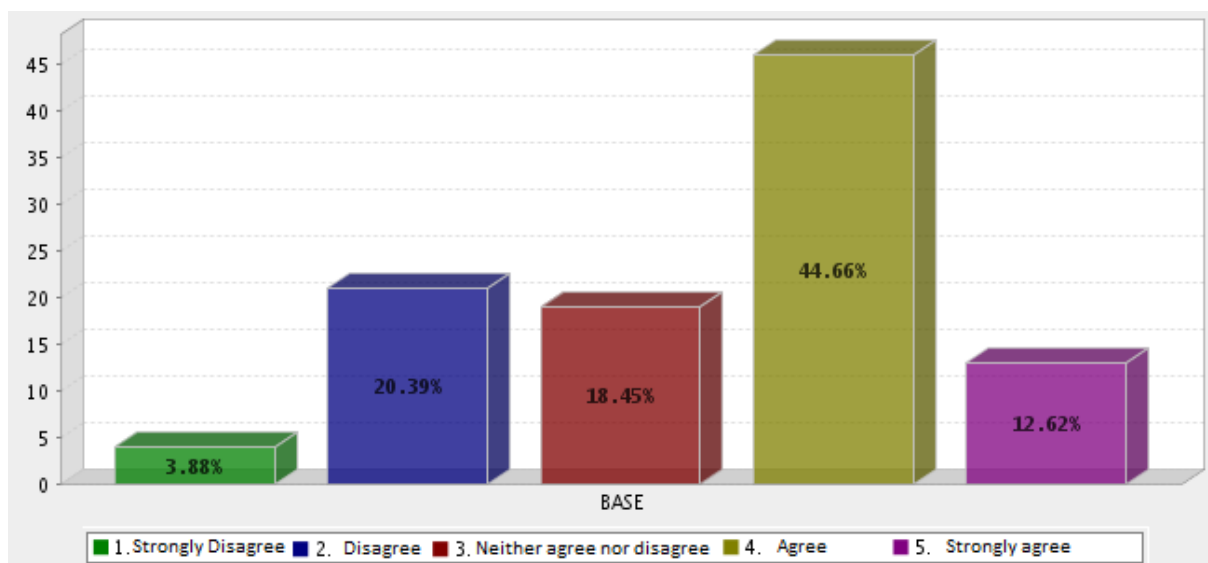
I like to discover new Internet applications



I like to belong to a group



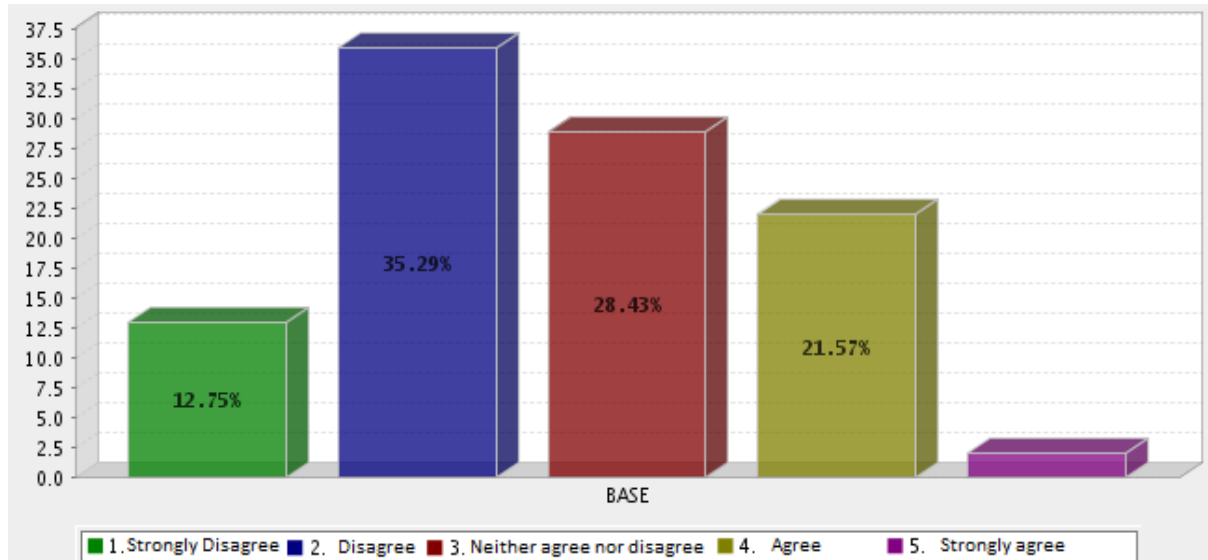
I can live without others (I don't need others)



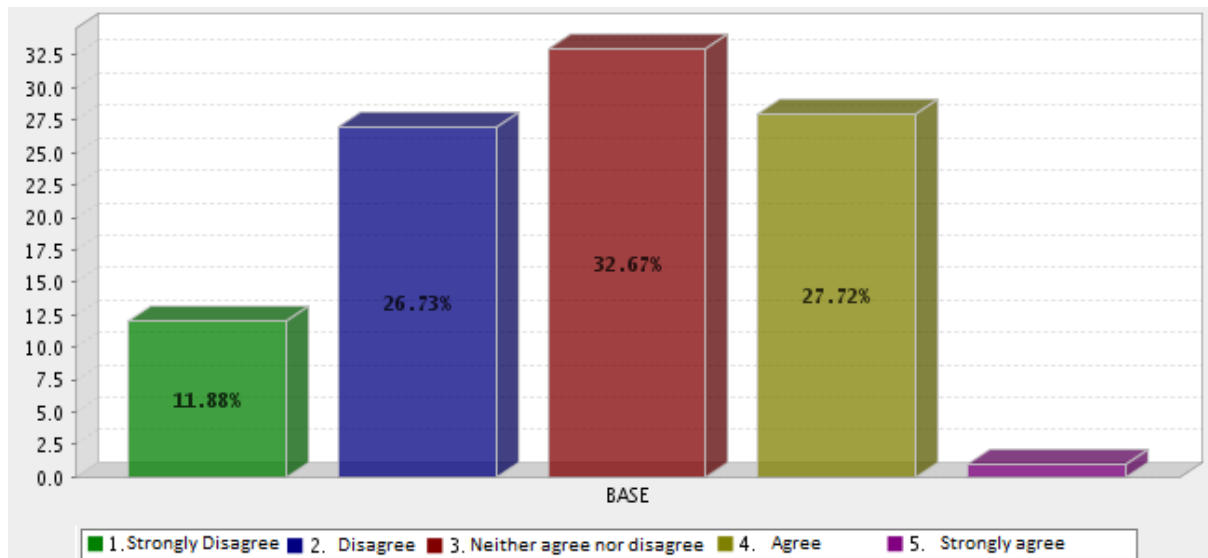
APPENDIX E

Results of Trust and Privacy Concern Factors' Distributions

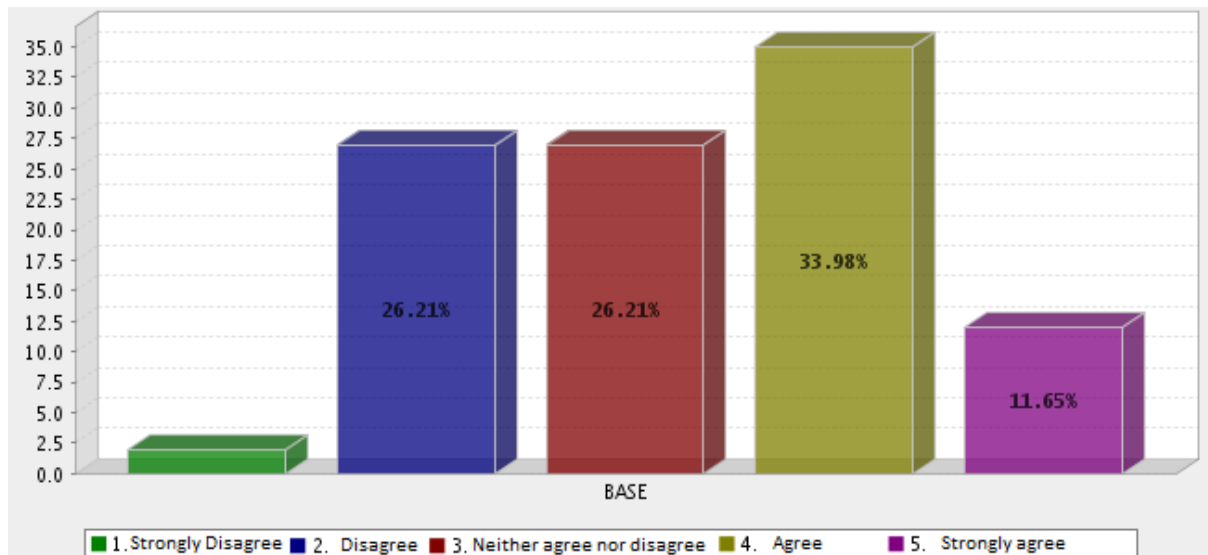
I believe that my personal data on Facebook will not be used for other purposes.



I believe that my personal information is kept safe by Facebook.



Most of the profiles on Facebook do not reflect the real identities of members



I am mostly concern about the comments of myself on Facebook (the photo tags, wall writings, comments about photos or posts)

